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NUCLEAR WASTE DISPOSAL POLICY

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HEARINGS

BEFORE THE

SUBCOMMITTEE ON
ENERGY CONSERVATION AND POWER

OF THE

COMMITTEE ON
ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

NINETY-SEVENTH CONGRESS

SECOND SESSION

ON

H.R. 1993, H.R. 2881, H.R. 3809, and H.R. 5016

BILLS TO PROVIDE FOR DEVELOPMENT OF FACILITIES FOR STORAGE, DISPOSAL, AND REPROCESSING OF RADIOACTIVE WASTE AND SPENT FUEL, AND FOR OTHER PURPOSES

JUNE 8 AND 10, 1982

Serial No. 97–164

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NUCLEAR WASTE DISPOSAL POLICY

TUESDAY, JUNE 8, 1982

House of Representatives,
Committee on Energy and Commerce,
Subcommittee on Energy Conservation and Power,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2123, Rayburn House Office Building, Hon. Richard L. Ottinger (chairman) presiding.

Mr. Ottinger. Good morning.

This morning the Subcommittee on Energy Conservation and Power begins hearings on the issue of nuclear waste disposal, the first hearings we have had on this subject this year.

However, for over a year, efforts have been underway to develop a consensus nuclear waste bill which would build upon the agreements in the waste bill which passed the House during the 96th Congress. Initially, this effort involved representatives of the majority and minority staff of three of the House committees of jurisdiction. Unfortunately, difficulties in incorporating an unlicensed test and evaluation facility into the schedule for a full-scale licensed repository, together with attempts to expand the scope of the bill to include changes in the licensing process and restrictions on the applicability of the National Environmental Policy Act and access to the process by citizens resulted in a breakdown of these negotiations causing the Committee on Science and Technology to proceed unilaterally.

Although that committee considered a comprehensive bill containing provisions beyond the scope of the committee's jurisdiction, the Science and Technology Committee confined its markup to only those sections of the bill related to research and development activities.

Negotiations to develop a consensus bill between the Committee on Interior and Insular Affairs and the Committee on Energy and Commerce continued. Last December, a draft proposal, representing an agreement on the part of Chairman Udall, Chairman Dingell, and myself, was circulated. After receiving comments from a number of interested parties, the draft was revised.

Because the proposal did not include any provisions for Federal responsibility for the interim storage of spent fuels, the proposal was opposed by industry. Chairman Udall then decided to proceed to a markup in the absence of a consensus and, shortly thereafter, the Interior and Insular Affairs Committee reported an amended version of H.R. 3809.

Efforts to draft a compromise bill agreeable to the majority and minority members of this committee, as well as to the industry and the environmental community, continue. Recently an agreement on some of the general principles was reached between the ranking minority member of the full committee, Mr. Broyhill, the ranking minority member of the subcommittee, Mr. Moorhead, and myself.

I am grateful for the time and effort both have expended in attempting to reach a compromise and I hope that during the balance of this week, the issues that remain and disagreements can be resolved. I am determined that we will act on a nuclear waste bill this year, and I hope it will be in a manner in which all the parties can reach agreement, so that it can be put through the House expeditiously, and go to conference with the Senate.

I think that the waste that has been accumulating around the country represents an increasingly difficult problem, and the Congress has a responsibility to deal with that problem expeditiously, carefully, and thoroughly.

I will just give you briefly some of the issues that, as I see it, are particularly difficult and remain outstanding, and I would hope that our witnesses would address those issues. The first difficult issue is the schedule to be pursued in selecting an initial repository and proceeding to the construction of the final repository.

We are concerned that those dates not be so accelerated as to be unrealistic or to preclude thorough evaluation of potential sites. I am very much mindful of the fact that the Department of Energy was ready to proceed not long ago to put nuclear waste in salt domes in Lyons, Kans. They assured this committee, the Interior Committee in the Congress, that there were no problems, that the site had been thoroughly characterized and it was a safe and permanent site for waste disposal.

Through the efforts of former Republican Representative from Kansas, Congressman Skubitz, the authorization to proceed was not granted,

Shortly thereafter, it was found that the salt domes in Lyons, Kans., were in fact not secure, and that matters that were put in those salt domes would leach into the water supply.

That gives us reason to be exceedingly careful and assured that whatever kind of characterization work is done, is done thoroughly and done before major permanent work is done on any site.

The second major issue that we have to resolve is the question of the involvement of the National Environmental Policy Act in these deliberations at various stages. The first stage, of course, is the process of characterization, and in that process a good many changes to the landscape will probably be made, road systems, and so forth. It is proposed that shafts be dug, and there is the possibility that some nuclear waste will be put in those shafts on an experimental basis.

It is very important that adequate information be made available at the earliest possible time to the States and to the citizens who are concerned, and the extent of that involvement, and what kind of findings have to be made is still at issue.

With respect to the final repository, it is my desire, and I think Mr. Broyhill's, the industry's, and the departments, that we not have unnecessary duplication. Today we have reached a tentative accommodation that I hope will continue to prevail. There should be a principal environmental impact statement drawn by the Department of Energy. The NRC, when it goes through the licensing process, however, should not be excluded from any NEPA issues and be permitted to supplement the DOE-EIS to the extent that it is able to provide the information that the NRC feels necessary at that point.

It is a major issue about interim storage of spent fuel, what the real need for it is, say, what the alternatives for it may be. There is tentative agreement, an agreement on my part, that no plant should be required to be closed down for failure to have spent fuel storage available to it. But also a feeling that the issue has been far overblown by the industry, and that onsite and dry storage, storage within the utility system, and private storage are all preferable to any kind of Government-provided storage, even though industry would pay for it.

We are very concerned that unnecessary transportation of waste not take place. The tentative agreement calls for a very tough procedure whereby the industry or the particular utility would have to prove to the NRC, in an on-the-record proceeding subject to judicial review, that in fact it could not solve its storage problems. First through expansion of onsite storage, whether it be through dried casks or whether it be through expanding its existing pools, reloading its existing pools.

Then, second, that it does not do this by transfer within its own system.

Third, that it could not resolve its problem through some kind of private storage facility. If they can meet that burden of proof, then the Government would provide for an AFR on existing Federal facilities being used for the same or similar purposes, at the industry expense.

There are issues with regard to State participation at every stage, to provide adequate State information and adequate State participation, and ultimately the question is what kind of State veto rights ought to be granted. Whether there ought, on the one extreme, to be required that both Houses of the Congress and the President sustain a veto, or on the other extreme, both Houses of Congress and the President overturn a State veto.

The last major issue that we have to address is the treatment of military waste, or the nontreatment of military waste, as the case may be. That issue proved to be so controversial last year in the last Congress that it proved to be the issue on which the entire effort foundered. We sincerely hope that that problem can be avoided one way or the other this year.

It seems to me there seems to be general agreement that after waste leaves a military installation, there is no sense having separate repositories for military waste and civilian waste, and I would hope something can be worked out.

I would hope that our witnesses would address those issues. We have tentative agreements on some parts of them, but they still are tentative. Our purpose in having these hearings—and we will have additional hearings on Thursday—is to hear your wisdom on these subjects.

At this time I would like to insert into the record certain bills which are related to the subject of our hearing today.

[Testimony resumes on p. 215.]

[The texts of H.R. 1993, H.R. 2881, H.R. 3809, and H.R. 5016 follow:]

I

97TH CONGRESS
1ST SESSION

H. R. 1993

To provide for the development of a plan for the disposal of radioactive waste and spent nuclear fuel, to require the construction of repositories in accordance with the plan, to establish a Federal policy regarding the interim storage and commercial reprocessing of spent nuclear fuel, to provide for a demonstration program for dry storage of such fuel, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 23, 1981

Mr. LUNDINE introduced the following bill; which was referred jointly to the Committees on Energy and Commerce, Interior and Insular Affairs, Rules, and Science and Technology

---

A BILL

To provide for the development of a plan for the disposal of radioactive waste and spent nuclear fuel, to require the construction of repositories in accordance with the plan, to establish a Federal policy regarding the interim storage and commercial reprocessing of spent nuclear fuel, to provide for a demonstration program for dry storage of such fuel, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Radioactive Waste Research, Development, and Policy Act."

FINDINGS AND PURPOSES

SEC. 2. (a) The Congress finds that:

(1) Radioactive wastes pose a potentially serious threat to the environment and to the expanded utilization of nuclear energy.

(2) A comprehensive national strategy to safely manage and dispose of our radioactive wastes has not been fully developed or accepted among Federal agencies, individual States, and interested citizens.

(3) Primary responsibility for the interim management of spent nuclear fuel from commercial reactors rests with the private sector.

(4) Only the Federal Government has the technical resources to provide a solution to the problem of permanently isolating radioactive wastes from the environment.

(5) The costs of permanent disposal of radioactive wastes should be provided by the persons or entities which generate such wastes through payment of a fee charged at the time the waste is generated.

(6) The individual States must become an integral part of the planning process for disposing of radioactive wastes.

(7) Deferral of commercial nuclear reprocessing has not significantly contributed to progress toward establishing an international nonproliferation policy.

(b) It is the purpose of this Act:

(1) To establish a national mission plan for the disposal of radioactive wastes.

(2) To establish a Federal policy toward the interim storage and reprocessing of commercial spent nuclear fuel.

(3) To provide for a demonstration program for dry storage of spent nuclear fuel.

(4) To provide for the establishment of a utility trust fund to pay for the costs of carrying out the mission plan.

(5) To provide for a procedure to assure adequate consultation and involvement of individual States and Indian tribes regarding potential repositories within their borders.

(6) To authorize payments to States within whose borders radioactive waste disposal facilities are sited.

DEFINITIONS

SEC. 3. For purposes of this Act:

(1) The term "high-level nuclear waste" means the highly radioactive wastes resulting from the reprocessing of spent nuclear fuel, liquid waste which is produced directly in reprocessing, any solid material into which such liquid waste is made, and such other highly radioactive material as the Commission designates as high-level radioactive waste following a determination that such designation is necessary to protect the public health and safety.

(2) The term "Independent Review and Arbitration Board" means the Board established by section 105.

(3) The term "Indian reservation" means—

(A) the Indian reservations and dependent Indian communities referred to in clauses (a) and (b) of section 1151 of title 18, United States Code; and

(B) lands selected by Alaska Native villages or regional corporations under the provisions of the Alaska Native Claims Settlement Act.

(4) The term "Indian tribe" means any Indian tribe, band, nation, or other organized group or community of Indians recognized as eligible for the services provided to Indians by the Secretary of the Interior because of their status as Indians, including any

Alaska Native village, as defined in section 3(c) of the Alaska Native Claims Settlement Act (43 U.S.C. 1602).

(5) The term "intermediate scale repository" means any repository described by section 103.

(6) The term "permanent repository" means any facility for the permanent deep geologic disposal of radioactive waste, spent nuclear fuel, or any combination of such waste or fuel, in a manner which does not permit the subsequent recovery of the materials placed in the repository.

(7) The term "radioactive waste" means high-level nuclear waste and transuranic waste.

(8) The term "research and development repository" means any repository described by section 102.

(9) The term "Secretary" means the Secretary of Energy.

(10) The term "spent nuclear fuel" means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing.

(11) The term "State", except as used in section 112 of this Act, means the several States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Northern

Mariana Islands, the Trust Territory of the Pacific Islands, and any other territory or possession of the United States. For purposes of section 112, such term means only the fifty States of the United States and the District of Columbia.

(12) The term "State review board" means any State review board that meets the requirements of section 106, as so determined by the Secretary.

(13) The term "transuranic waste" means material contaminated with elements which have an atomic number greater than 92, including neptunium, plutonium, americium, and curium, which have a half life greater than five years, and which are in concentrations greater than ten nanocuries per gram or in such other concentrations as the Nuclear Regulatory Commission determines is necessary to protect the public health and safety.

TITLE I—REPOSITORIES FOR RADIOACTIVE WASTE AND SPENT NUCLEAR FUEL

MISSION PLAN FOR RADIOACTIVE WASTE DISPOSAL

SEC. 101. (a) The Secretary shall prepare a comprehensive report, to be known as the mission plan, which shall provide an informational basis sufficient to permit informed decisions to be made with respect to the disposal of spent nuclear fuel and radioactive waste. The mission plan shall include the following elements:

(1) With respect to research and development needs for repository siting and construction, the plan shall include—

(A) an identification of all scientific and technical information that must be available before rational determinations can be made with respect to the siting and construction of research and development repositories, intermediate scale repositories, and permanent repositories; and

(B) an identification of which information referred to under subparagraph (A) is not available because of unresolved scientific or technical questions, a schedule for the research and development programs to be undertaken to provide such information, a description of the research methods to be used in such programs, and an estimate of the costs required to carry out such research and development programs.

(2) An evaluation of financial, political, or institutional problems which might impede the development of a solution to the problem of the disposal of radioactive waste and spent fuel, and recommendations for ways to resolve them.

(3) The determination of the Secretary regarding the need to proceed with unlicensed research and development repositories, intermediate scale repositories, or both, and, in the case that the Secretary has approved development of such facilities—

(A) the reasons that the Secretary considers their development to be appropriate (including the information determined to be necessary under paragraph (1)(B)) which the Secretary seeks to obtain;

(B) the designation of potential sites for such facilities; and

(C) the period of time during which such facilities would operate, the date at which radioactive waste or spent nuclear fuel stored at the facilities would be removed, and the site to which such waste or fuel would be moved.

The mission plan shall also include any comments made by the Nuclear Regulatory Commission with respect to decisions of the Secretary under this paragraph.

(4) A summary of the results of research and development programs conducted for each of the different geologic media under consideration for the siting of repositories, and on the basis of such information a com-

parison of the advantages and disadvantages associated with the use of such media for repository sites.

(5) Development of site selection criteria on which to base recommendations under paragraph (6) of the sites at which site characterization activities should be undertaken.

(6) Recommendations of the sites at which site characterization activities should be undertaken to determine the suitability of the sites for use as intermediate scale or permanent repositories, and a description of such activities, including—

(A) plans for any on-site testing of radioactive or nonradioactive material;

(B) proposed investigation activities to determine the ability of the site to isolate radioactive waste materials and spent nuclear fuel, which may include borings, surface excavations, exploratory shafts, and in-site testing; and

(C) safety precautions to ensure the protection of the public from such activities.

(7) Recommendations for (A) the form in which radioactive waste and spent nuclear fuel should be emplaced in repositories, (B) the packaging for such waste and fuel, and (C) the manner in which such waste and fuel should be transported.

(8) An estimate of (A) the total repository capacity required to safely accommodate the disposal of all radioactive waste and spent nuclear fuel generated through the year 2000 in the event that no commercial reprocessing of spent nuclear fuel occurs, as well as the repository capacity which would be so required if such reprocessing did occur, (B) the number and type of repositories required to be constructed to provide such disposal capacity, and (C) a schedule for the construction of such repositories, and (D) an estimate of the period during which each repository listed in the schedule would be in operation before being filled to its maximum extent.

(9) An estimate of the costs required (A) to construct and operate the repositories anticipated to be needed under paragraph (8) based on each of the assumptions referred to in such paragraph, (B) to construct and operate any research and development repositories or intermediate scale repositories determined to be necessary (other than any such repositories included under subparagraph (A)), and (C) to carry out any other activities under this Act.

(10) The identification of the possible adverse impacts which may arise from the development of research and development, intermediate scale, or

permanent repositories at a site, and the manner in which the Secretary would determine whether to provide for impact aid to a State or locality under section 108 to help alleviate such impacts.

(b)(1) Not later than January 1, 1982, the Secretary shall submit the mission plan to the State Planning Council established under section 112, to the Interagency Review Group established under section 111, and to the Nuclear Regulatory Commission for their comments. The Secretary, after reviewing any comments made by such entities and revising the plan to the extent that the Secretary may consider to be appropriate, shall submit the mission plan to appropriate committees of the Congress by March 1, 1982. The mission plan shall be effective at the end of the first period of sixty calendar days of continuous session of the Congress after the date of transmittal of the plan unless, during such period, either House of the Congress passes a resolution the matter after the resolving clause of which reads as follows: "The disapproves the mission plan submitted by the Secretary of Energy on ."; (the first blank space being filled with the designation of the appropriate house of the Congress; the second blank space being filled with the date of the transmittal to the Congress). For purposes of paragraphs (3) through (7) of this subsection, the term "resolution" means a resolution described by this paragraph. Any such resolution shall be accompanied by appropriate committee reports providing, in general terms, the reasons for the disapproval.

(2) Paragraphs (3) through (7) of this subsection are enacted by Congress—

(A) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by paragraph (1) of this subsection; and the provisions of such paragraphs supersede other rules only to the extent that they are inconsistent therewith; and

(B) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of the House.

(3) A resolution once introduced with respect to any mission plan shall immediately be referred to a committee (and all resolutions with respect to the same plan shall be referred to the same committee) by the President of the Senate or the Speaker of the House of Representatives, as the case may be.

(4)(A) If the committee to which a resolution with respect to a mission plan has been referred has not reported it at the end of thirty calendar days after its referral, it shall be in order to move either to discharge the committee from further consideration of such resolution or to discharge the committee from further consideration of any other resolution with respect to such plan which has been referred to the committee.

(B) A motion of discharge may be made only by an individual favoring the resolution, shall be highly privileged (except that it may not be made after the committee has reported a resolution with respect to the same site designation) and debate thereon shall be limited to not more than one hour, to be divided equally between those favoring and those opposing the resolution. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(C) If the motion to discharge is agreed to or disagreed to, the motion may not be renewed, nor may another motion to discharge the committee be made with respect to any other resolution with respect to the same site designation.

(5)(A) When the committee has reported, or has been discharged from further consideration of, a resolution it shall be at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) to move to proceed to the consideration of the resolution. The motion shall be highly privileged and shall not be debatable. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(B) Debate on the resolution referred to in subparagraph (A) of this paragraph shall be limited to not more than five hours, which shall be divided equally between those favoring and those opposing such resolution. A motion further to limit debate shall not be debatable. An amendment to, or motion to recommit, the resolution shall not be in order, and it shall not be in order to move to reconsider the vote by which such resolution was agreed to or disagreed to.

(6)(A) Motions to postpone, made with respect to the discharge from committee, or the consideration of, a resolution, and motions to proceed to the consideration of other business, shall be decided without debate.

(B) Appeals from the decision of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to a resolution shall be decided without debate.

(7) Notwithstanding any of the provisions of this subsection, if a House has approved a resolution with respect to a

mission plan, then it shall not be in order to consider in that House any other resolution with respect to the same plan.

(8) For purposes of this subsection—

(A) continuity of session of Congress is broken only by an adjournment sine die; and

(B) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of the sixty-day period.

(c)(1) If a mission plan fails to become effective as the result of the disapproval of the Congress under subsection (b), the Secretary shall revise the mission plan to take into consideration the reasons cited by the Congress as the basis for the disapproval, and shall submit to the State Planning Council, the Interagency Review Group, the Nuclear Regulatory Commission, and the Congress, not later than one hundred and eighty days after any disapproval, a revised plan. A revised plan shall become effective (or shall be disapproved) in the same manner as provided under subsection (b) with respect to the original submission.

(2) Every two years after the mission plan first takes effect under this section, the Secretary shall submit to the Congress a report describing in detail the progress made toward implementation of the plan. The report shall include proposals for any revisions or amendments to the mission

plan which the Secretary considers appropriate to accomplish the purposes of this Act.

(3) Any proposed amendment to an approved mission plan shall be submitted to the Congress, either in a report under paragraph (2) or at such other time as the Secretary considers appropriate, and the amendment shall become effective (or shall be disapproved) in the same manner as provided under subsection (b).

RESEARCH AND DEVELOPMENT REPOSITORIES

SEC. 102. (a)(1) If the Secretary concludes in the mission plan that establishment and operation of unlicensed research and development repositories to gather test data regarding the suitability of the emplacement of radioactive waste or spent nuclear fuel in various geologic media, and the interaction of such waste or fuel with such media, is necessary or appropriate, the Secretary may provide for one such repository in each geologic media under consideration for use for permanent repositories. In designating sites for repositories under this section, the Secretary shall give preference to sites on which facilities of the Department of Energy are located. Not more than forty metric tons of spent nuclear fuel may be stored at any research and development repository, and all spent nuclear fuel emplaced in any such repository shall be stored in such manner that the fuel is fully retrievable. Before constructing a research and development repository at any specific site, the Secretary shall consult with the Nuclear Regulatory Commission. The Secretary shall notify the State review board of any State in which the Secretary intends to construct such a facility and shall make a good faith effort to enter into an agreement with such board providing for the terms and conditions of the construction and operation of the facility. If the Secretary and the board are not able to negotiate an agreement within the six-month period beginning on the date of the notification, the Secretary may begin construction activities at the site without reaching an agreement.

(2) At the end of the period provided for the operation of the research and development repository (as specified in the mission plan), the radioactive waste or spent nuclear fuel stored at the site shall be removed for storage to an appropriate location, as identified under the mission plan.

(b) No action taken under the authority of this section shall be considered to be a major Federal action for purposes of the National Environmental Policy Act of 1969. However, before designating any site for a repository under this section and before beginning construction of any repository at a designated site, the Secretary shall review the environmental impacts of the site designation and the proposed repository construction and shall issue a report containing an environmental assessment thereof.

INTERMEDIATE SCALE REPOSITORIES

SEC. 103. (a) In developing the mission plan under section 101, the Secretary shall determine, after consultation with the Nuclear Regulatory Commission, whether or not to proceed with development of intermediate scale repositories for the storage of radioactive waste or spent nuclear fuel, or any combination thereof. The determination shall be based upon an evaluation of the following factors:

(1) The need to acquire more information about the suitability of a waste disposal system, geologic medium, or specific site for the permanent disposal of radioactive waste or spent nuclear fuel, and the extent to which a facility under this section would provide such information.

(2) The need to acquire more expertise regarding any aspect of the construction or operation of a permanent repository, which expertise could be acquired only through the actual construction or operation of an intermediate scale repository.

(b) Any intermediate disposal facility under this title shall be constructed in such manner that—

(1) it has a storage capacity of not less than several hundred, but not more than one thousand, metric tons of spent nuclear fuel;

(2) the spent nuclear fuel emplaced in the repository shall be fully retrievable for a period of twenty years (unless before the end of such period the facility is expanded into a permanent repository); and

(3) the facility can be expanded into a permanent repository subject to licensing for such purpose by the Nuclear Regulatory Commission.

(c) The procedures specified under section 104 relating to (1) review by State review boards or Indian tribal governing bodies, (2) mediation by the Independent Review and Mediation Board, and (3) licensing by the Nuclear Regulatory Commission shall each be applicable to the siting, construction, and operation of repositories under this section.

SITE CHARACTERIZATIONS, REVIEW PROCEDURES, AND CONSTRUCTION AUTHORIZATION

SEC. 104. (a) When the Secretary submits the mission plan to the State Planning Council, Interagency Review Group, and Nuclear Regulatory Commission for review as required under section 101, the Secretary shall also submit a copy of the proposed plan to the State review board of each State in which is located the proposed site of any research and development repository, intermediate scale repository, or permanent repository, and to the tribal governing body of any Indian tribe on whose reservation a proposed site is located. To each such board or governing body, the Secretary shall provide in addition to the mission plan other detailed information relevant to the site involved in order to further elaborate upon the reasons for choosing the site.

(b) Not later than January 1, 1985, the Secretary shall—

(1) complete characterization activities (including the sinking of shafts) at each site designated in the mission plan as the site for an intermediate or permanent repository; and

(2) provide a report containing the results of such characterization activities to each appropriate State review board and Indian tribal governing body.

(c)(1) Not later than January 1, 1987, the Secretary shall designate at least two sites for the construction of intermediate scale or permanent repositories. No site may be designated by the Secretary under this paragraph unless the Secretary has—

(A) completed any environmental impact statement required by law to be prepared for the site;

(B) completed the engineering design plans for the repository proposed for the site and determined the appropriate waste form or forms and packaging technologies; and

(C) submitted a preliminary license application to the Nuclear Regulatory Commission and solicited their comments, based on the information described under subparagraphs (A) and (B) and any other information contained in a preliminary application, on whether the Secretary should proceed with consideration of such site as the site for an intermediate scale or permanent repository.

(2) Not later than January 1, 1991, the Secretary shall designate such additional sites for the construction of repositories as may be required to carry out the mission plan. The procedures under this section shall be applicable to such sites (except that the dates specified in subsections (b) and (c) shall not apply to subsequent designations).

(3) A site designation under this subsection shall take effect thirty days after the date the site designation is made under this subsection except in any case in which objections to the designation are filed under subsection (d). If objections are so filed, a site designation may take effect only when the Independent Review and Arbitration Board determines under subsection (d)(2) that the characterization activities, characterization report, environmental impact statement, engineering design, and designated waste form or forms and packaging technologies for the site are adequate.

(d)(1) Not later than thirty days after the date of the designation of a site for a repository under subsection (c), any State review board or Indian tribal governing body having objections to the designation may submit to the Secretary and to the Independent Review and Arbitration Board written notice that of its objection to the designation, together with detailed reasons for the objection.

(2) The Independent Review and Arbitration Board (hereinafter in this paragraph referred to as the "Board") shall review any objections under paragraph (1) in order to determine (A) whether the site characterization activities at the site were conducted in the manner required under the mission plan, (B) whether the engineering design, designated waste form or forms, packaging technologies, characterization report, and the environmental impact statement for the site fully address those concerns raised by the State review board or tribal governing body which the Board finds to be of significance. Not later than ninety days after its receipt of any objection under paragraph (1), the Board shall make the determinations specified in the preceding sentence and shall issue written notice thereof. If the Board finds that the characterization activities, engineering design, designated waste form or forms and packaging technologies, characterization report, or environmental impact statement are not adequate for any of the reasons specified in the objections filed with the Board under paragraph (1), the Board shall identify those activities that must be undertaken by the Secretary to correct

any deficiencies. Determinations of the Board shall be final and shall not be subject to judicial review.

(e) As soon as possible after the designation of the sites under subsection (c) are effective, the Secretary shall submit to the Nuclear Regulatory Commission an application for a construction license for each designated site. The Nuclear Regulatory Commission shall make its determination to grant or deny any such application not later than four years after the date of its submission.

(f) The Government shall take title to any radioactive waste or spent nuclear fuel which is to be stored at an intermediate scale or permanent repository when such waste or fuel is delivered to such repository for storage. The Government shall not pay for any costs related to the transportation of such waste or fuel to such facility.

INDEPENDENT REVIEW AND ARBITRATION BOARD

SEC. 105. (a) Effective January 1, 1985, there is established a board to be known as the Independent Review and Arbitration Board (hereinafter in this section referred to as the "Board") which shall be responsible for carrying out the duties assigned to it by section 104 and for assisting State review boards and Indian tribal governing bodies in securing such information as they may need in order to assess the activities undertaken, and reports issued, with respect to possible sites in their States or reservations. The Board shall be composed of eleven members, as follows:

(1) Two members of the House of Representatives serving on a committee having jurisdiction over radioactive waste disposal, one of whom shall be appointed by the Speaker of the House and one of whom shall be appointed by the minority leader.

(2) Two members of the Senate serving on a committee having jurisdiction over radioactive waste disposal, one of whom shall be appointed by the Speaker pro tempore of the Senate, and one of whom shall be appointed by the minority leader of the Senate.

(3) Three members appointed by the President, one appointed from among recommendations received by representatives of the nuclear industry, one appointed from among recommendations received from public interest environmental groups, and one appointed from among recommendations received from the scientific community.

(4) Four members appointed by the State Planning Council established under section 112 from each of the geographic regions of the country on the basis of recommendations received by the Governors of the States.

(b)(1) Subject to paragraph (2), members of the Board shall serve for the life of the Board. Any vacancy in the

Board shall be filled in the manner in which the original appointment was made.

(2) If any member of the Board who was appointed to the Board as a Member of the Congress leaves that office, such member may continue as a member of the Board for not longer than the thirty-day period beginning on the date the member leaves such office.

(3) Members of the Board shall serve without pay, except that while away from their homes or regular place of business in the performance of services for the Board, all members shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed under 5703 of title 5, United States Code.

(c)(1) The Chairman of the Board shall be elected by the members of the Board. The term of office of the Chairman shall be four years.

(2) The Board shall meet not less than once every two months at the call of the Chairman or a majority of its members.

(d)(1) The Board may appoint and fix the pay of such staff as the Board considers appropriate. The staff may be appointed without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and may be paid without regard to the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, except that no individual so appointed may receive pay in excess of the maximum annual rate of basic pay payable for grade GS-16 of the General Schedule.

(2) The Board may procure temporary and intermittent services under section 3109(b) of title 5, United States Code, but at rates for individuals not to exceed the maximum annual rate of basic pay payable for grade GS-16 of the General Schedule.

(3) Upon request of the Board, the head of any Federal agency may detail, on a reimbursable basis, any of its personnel to the Board to assist the Board in carrying out its duties under this section.

(4) The Administrator of General Services shall provide to the Board on a reimbursable basis such administrative support services as the Board may request.

(e)(1) The Board may, for the purpose of carrying out this section, hold such hearings, sit and act at such times and places, take such testimony, and receive such evidence, as the Board considers appropriate. The Board may administer oaths or affirmations to witnesses appearing before it.

(2) Any member or agent of the Board may, if so authorized by the Board, take any action which the Board is authorized to take by this section.

(3) The Board may secure directly from any department or agency of the United States information necessary to enable it to carry out its duties. Upon request of the Chairman of the Board, the head of such department or agency shall furnish such information to the Board.

(4) The Board may use the United States mails in the same manner and under the same conditions as other departments and agencies of the United States.

(f)(1) The Board may issue subpenas requiring the attendance and testimony of witnesses and the production of any evidence that relates to any matter under investigation by the Board. Such attendance of witnesses and the production of such evidence may be required from any place within the United States at any designated place of hearing within the United States.

(2) If a person issued a subpena under paragraph (1) refuses to obey such subpena or is guilty of contumacy, any court of the United States within the judicial district within which the hearing is conducted or within the judicial district within which such person is found or resides or transacts business may (upon application by the Board) order such person to appear before the Board to produce evidence or to give testimony relating to the matter under investigation. Any failure to obey such order of the court may be punished by such court as a contempt thereof.

(3) The subpenas of the Board shall be served in the manner provided for subpenas issued by a United States district court under the Federal Rules of Civil Procedure for the United States district courts.

(4) All process of any court to which application may be made under this section may be served in the judicial district in which the person required to be served resides or may be found.

(5) No person shall be excused from attending and testifying or from producing books, records, correspondence, documents, or other evidence in obedience to a subpena, on the ground that the testimony or evidence required of him may tend to incriminate him or subject him to a penalty or forfeiture; but no individual shall be prosecuted or subjected to any penalty or forfeiture by reason of any transaction, matter, or thing concerning which he is compelled, after having claimed his privilege against self-incrimination, to testify or produce evidence, except that such individual so testifying shall not be exempt from prosecution and punishment for perjury committed in so testifying.

(g) The Board shall cease to exist thirty days after it has carried out all its duties under this section with respect to the last site designated for a repository by the Secretary pursuant to the mission plan.

ROLE OF STATE REVIEW BOARDS AND INDIAN TRIBES

SEC. 106. (a)(1) For purposes of this title, a State review board of a State is an entity of the State which is—

(A) created under State law with the authority described in paragraph (2) and the composition prescribed by paragraph (3); and

(B) determined by the Secretary to be established in accordance with this section.

(2) A State review board shall be authorized under State law to—

(A) review activities under this title and activities of the Nuclear Regulatory Commission with respect to any site in the State designated under the mission plan for site characterization activities in order to determine the potential impacts of any intermediate scale or permanent repository on the State and its residents;

(B) be a representative of the State in any proceeding before the Nuclear Regulatory Commission respecting a site for such a repository in the State; and

(C) submit, in accordance with section 104(d), to the Independent Review and Arbitration Board objections regarding the designation of a site in the State for such a repository.

(3) The State review board shall consist of representatives of local governments which would be affected by the

repository and members representing the interests of the general public in the State.

(4) The State review board shall hold meetings open for public participation not less than once every four months, at which meetings the board shall receive and to the extent practicable place on its agenda matters submitted by board members.

(5) The authority of State review boards shall not be applicable with respect to sites located on Indian reservations. Any references contained in this section to sites located within a State shall not be deemed to include sites located on Indian reservations within the State.

(b) Subject to subsection (d) and to the availability of funds to carry out this subsection, the Secretary shall make grants to the State review boards of each State in which a site for a repository has been designated under the mission plan. Grants under this subsection shall be made under such terms and conditions as the Secretary may prescribe.

(c) The governing body of any Indian tribe on whose reservation is located a site designated for site characterization under the mission plan shall have the authorities described under subsections (a)(2)(A) and (a)(2)(C). Subject to the availability of funds to carry out this section, the Secretary shall provide to the governing body of each Indian tribe referred to in the preceding sentence such funds as may be necessary to provide technical assistance to the tribe, and to assist the tribe in conducting the activities described under subsections (a)(2)(A) and (a)(2)(C) as well as similar activities related to a repository.

(d)(1) State review boards or governing bodies of Indian tribes, as the case may be, may not receive grants under this section after the expiration of one year after—

(A) the date on which the Secretary notifies the State review board or tribal governing body that, on the basis of site characterization activities, the Secretary has determined that a site in the State or on the reservation of the tribe, as the case may be, does not meet the requirements applicable to repositories; or

(B) the date on which the Commission disapproves an application for a construction authorization for a repository at a site in the State or on the reservation of the tribe;

unless there is another site in the State or on the reservation of the tribe, as designated in the mission plan, with respect to which the actions described in subparagraphs (A) and (B) have not been taken.

(2) At the end of the one-year period beginning on the effective date of any operating license for a repository in a State or on the reservation of an Indian tribe, no Federal funds shall be made available under this subsection for the

State review board of the State in which the repository is located or for the governing body of the affected Indian tribe, except for—

(A) such funds as may be necessary to support activities related to any other repository located in, or proposed to be located in, such State or reservation, and for which an operating license has not been in effect for more than one year; and

(B) such funds as may be necessary to support activities pursuant to agreements or contracts for assistance entered into under subsection (c) or (d) with the Secretary before the end of such one-year period.

FEDERAL COOPERATION WITH STATES AND INDIAN TRIBES

SEC. 107. (a) The Secretary, the Nuclear Regulatory Commission, and other agencies involved in the construction or operation of any research and development, intermediate scale, or permanent repository in a State shall provide to the State review board of such State, and to the governing body of any Indian tribe on or adjacent to whose reservation the repository site is located, timely and complete information regarding determinations or plans made with respect to the siting, development, design, construction, operation, or regulation of the repository.

(b) In performing any study of an area within a State for the purpose of determining the suitability of the area for a repository and in subsequently developing and loading radioactive materials at any repository within a State, the Secretary shall consult and cooperate with the State review board of the State and the governing body of any affected Indian tribe in an effort to resolve the concerns of the State and any affected Indian tribe regarding the public health and safety, environmental, and economic impacts of any such repository. In carrying out his duties under this Act, the Secretary shall take such concerns into account to the maximum extent feasible.

(c) As soon as possible after notifying a State review board or Indian tribe of his decision to study an area within such State as a possible repository site, the Secretary shall seek to enter into a written agreement with the State review board of the State and, where appropriate, a separate agreement with the governing body of any affected Indian tribe, setting forth the procedures under which the requirements of this section shall be carried out. The written agreement shall specify procedures—

(1) by which the State review board or the governing body of the Indian tribe (as the case may be) may study, determine, comment on, and make recommendations with regard to the possible health and

safety, environmental, and economic impacts of any such repository;

(2) by which the Secretary may consider and respond to comments and recommendations made by the State review board or the governing body of the Indian tribe (as the case may be), including the period in which the Secretary may so respond;

(3) by which the Secretary and either the State review board or the governing body of the affected Indian tribe (as the case may be) may review or modify the agreement periodically; and

(4) for public notification of the procedures specified under paragraphs (1) through (3).

PAYMENTS TO STATES

SEC. 108. (a) Notwithstanding any other provision of law, from funds available under section 109 the Secretary shall make annual payments in lieu of taxes to the States for any property within their jurisdiction owned by the Federal Government and used for a research and development repository, intermediate scale repository, or permanent repository. The payments shall be in amounts determined by the Secretary to be the amount of taxes that would be levied against the property if the property were subject to property taxation by the State. Property shall be considered to be "used for" a repository within the meaning of this subsection beginning on the date that site characterization activities are commenced at the property. If the Secretary determines at any date after carrying out site characterization activities not to construct a repository on the property, payments made with respect to such property under this subsection shall reflect only those taxes which would have been levied against the property during the period in which characterization activities occurred.

(b) Not later than March 1 of each year, the Secretary shall complete an assessment of the economic, social, environmental, or other impacts to the States or their political subdivisions caused by the siting within the States of research and development, intermediate scale, or permanent repositories. The Secretary shall determine, on the basis of the assessment, whether the payment of any sums in addition to the sums under subsection (a) is appropriate, and shall provide for any such impact aid payments to be made to the appropriate governmental entities from funds available for use for such purpose in the revolving fund established under section 109. In the case of a repository located on an Indian reservation, payments under this section shall be made to the governing body of the affected Indian tribe to the extent considered appropriate by the Secretary.

REPOSITORY TRUST FUND; UTILITY FEES

SEC. 109. (a) There is established in the Treasury a fund which shall be available to the Secretary without fiscal year limitation, in such amounts as may be specified from time to time in appropriation Acts—

(1) to enable the Secretary to carry out site characterization activities at potential sites for intermediate scale or permanent repositories, and to construct and operate such repositories, pursuant to the mission plan; and

(2) to permit the Secretary to make payments determined to be appropriate under section 108.

There shall be deposited in the fund amounts received by the Secretary under subsection (b), and there are authorized to be appropriated from time to time such additional amounts as may be necessary to provide the sums required for the fund. Money in the fund shall not be used to carry out research and development activities in connection with the mission plan.

(b) The Secretary shall determine, based upon cost estimates contained in the mission plan, the total anticipated cost of carrying out the activities specified in paragraphs (1) and (2) of subsection (a), other than any costs required for the disposal of radioactive waste or spent nuclear fuel owned by the Federal Government, any State, or any other public entity. The Secretary shall then calculate, for each metric ton of spent nuclear fuel or radioactive waste which is privately owned, the disposal fee to be assessed to persons or entities who hold title to such waste or fuel. The owners of radioactive waste and spent nuclear fuel shall be required to pay to the Secretary, in a lump sum, an amount sufficient to cover their disposal costs (as determined under the preceding sentence) based upon the amount of radioactive waste and spent nuclear fuel in interim storage to which they hold title. The Secretary shall collect the initial fees as soon as possible after determining the per unit costs to be assessed under this subsection, and shall from time to time assess and collect additional fees for radioactive waste or spent nuclear fuel subsequently discharged from nuclear reactors, or otherwise generated, and placed in interim storage. When radioactive waste or spent nuclear fuel is delivered for disposal to an intermediate scale or permanent repository constructed under this title, the Secretary shall determine the actual costs required to construct the repository and shall review the fees charged under this subsection to determine whether they accurately reflect such costs. Based on such calculations, the Secretary may revise the fees charged and may provide for a surcharge or a rebate of fees to the extent appropriate.

SCHEDULE FOR CERTAIN STANDARDS AND CRITERIA

SEC. 110. (a) Not later than October 1, 1981, the Administrator of the Environmental Protection Agency, pursuant to authority under other provisions of law, shall by rule promulgate generally applicable standards for the protection of the general environment from radioactive material in repositories.

(b) Not later than October 1, 1981, the Nuclear Regulatory Commisison, pursuant to authority under other provisions of law, shall by rule promulgate criteria which it will apply in reviewing under the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974 applications for construction authorizations for the construction of intermediate scale and permanent repositories.

INTERAGENCY REVIEW GROUP

SEC. 111. (a)(1) There is established the Interagency Review Group (hereinafter in this section referred to as the "group") which shall be composed of nine members. The heads of the following agencies shall each appoint one employee to serve as a member of the group: the Department of Energy; the Environmental Protection Agency; the Department of Transportation; the Nuclear Regulatory Commission; the Office of Management and Budget; the Department of the Interior; the Department of Commerce; and the Council for Environmental Quality. The President shall also appoint one individual on his personal staff responsible for domestic policy and science matters to serve as a member of the group.

(2) Members shall serve for the life of the group. Any vacancy in the group shall be filled in the manner in which the original appointment was made. If any member who was appointed as the representative of an agency under paragraph (1) ceases to be an employee of such agency, the member may continue as a member of the group for not longer than the thirty-day period beginning on the date such employment terminates.

(3) Members of the group shall serve without pay.

(4) The Chairman of the group shall be elected by its members.

(5) The group shall meet not less than twice each month at the call of the Chairman or a majority of its members.

(b) The group shall be responsible for—

(1) developing ways in which to improve interagency coordination of policies with respect to radioactive waste management;

(2) assisting the Secretary to develop the mission plan as required under this title; and

(3) reviewing the mission plan and submitting written comments on such plan to the Congress not later than March 1, 1982.

In carrying out its functions, the group shall consult on a regular basis with the State Planning Council.

(c)(1) Upon request of the group, the head of any Federal agency is authorized to detail any of its personnel to the group to assist the group in carrying out its duties.

(2) The group may secure directly from any agency of the United States information necessary to enable it to carry out its duties. Upon request of the chairman of the group, the head of such agency shall provide the group with such information.

(3) The group may use the United States mails in the same manner and under the same conditions as other departments and agencies of the United States.

(4) The Administrator of General Services shall provide to the group on a reimbursable basis such administrative support services as the group may request.

(d) The group shall cease to exist sixty days after the submission to the Congress of its comments pertaining to the mission plan, as required under subsection (b).

STATE PLANNING COUNCIL ON RADIOACTIVE WASTE MANAGEMENT

SEC. 112. (a)(1) There is established the State Planning Council on Radioactive Waste Management (hereinafter in this section referred to as the "Council"). The Council shall be composed of eighteen members as follows:

(A) Fourteen members designated by the President, of whom—

(i) eight members shall be Governors of States;

(ii) five members shall be elected officials of State or local governments, other than Governors; and

(iii) one member shall be a representative of an Indian tribal governing body.

(B) The Secretary of the Interior, or his designate.

(C) The Secretary of Transportation, or his designate.

(D) The Secretary of Energy, or his designate.

(E) The Administrator of the Environmental Protection Agency, or his designate.

(2) The Chairman of the Nuclear Regulatory Commission may participate in the activities of the Council, as may representatives of other Federal departments or agencies and representatives of any other entity referred to in section 3(11) when matters affecting them are considered. Individuals permitted to participate in Council activities under this subsection shall not be considered to be members of the Council and shall not be entitled to vote in Council deliberations.

(3) The President shall designate a Chairman from among the members of the Council.

(b) The Council shall provide advice and recommendations to the Secretary and to other Federal agencies on radioactive waste management, and shall review the mission plan submitted to the Council as required under section 101(b). The Council shall also do the following:

(1) Review the development of the mission plan and provide recommendations to ensure that the plans adequately addresses the needs of the State and local areas affected.

(2) Provide advice on all aspects of siting facilities for storage and disposal of radioactive waste and spent nuclear fuel, including the review of recommended criteria for site selection and site suitability, guidelines for regional siting, and procedures for site characterization and selection.

(3) Provide advice on appropriate roles for State governments, local governments, State review boards and Indian tribal governing bodies in the development of research and development repositories and in the licensing process for intermediate scale and permanent repositories.

(4) Provide advice on proposed Federal regulations, standards, and criteria related to radioactive waste management programs.

(5) Identify and make recommendations on other matters related to the transportation, storage, and disposal of radioactive waste and spent fuel that the Council believes are important.

Not later than February 1 of each year, the Council shall prepare and submit to the Secretary and to appropriate authorizing committees of the Congress a report on its activities.

(c) Members of the Council shall serve without pay, except that while away from their homes or regular place of business in the performance of services for the Council, all members shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed under 5703 of title 5, United States Code.

(d) To the extent permitted by law, and subject to the availability of funds, the Secretary of Energy shall provide the Council, including any subcommittees, with necessary facilities, support, and services, including staff and an executive director.

TITLE II—SPENT FUEL POLICIES

INTERIM STORAGE POLICY STATEMENT

SEC. 201. It shall be the policy of the Federal Government that—

(1) the primary responsibility for the interim storage of spent nuclear fuel rests with the private sector, and

(2) title to spent nuclear fuel generated by the private sector may pass to the Federal Government only upon the delivery of such fuel for storage at an intermediate or permanent repository constructed under title I of this Act.

REPROCESSING OF SPENT NUCLEAR FUEL

SEC. 202. (a)(1) The Nuclear Regulatory Commission shall continue to develop the necessary procedures, as required under the Atomic Energy Act of 1954 or other applicable law, to proceed with the licensing of commercial nuclear reprocessing operations, and shall seek to complete such procedures as soon as possible. After developing necessary licensing procedures the Nuclear Regulatory Commission shall permit the commercial reprocessing of spent nuclear fuel, subject to such permits, licenses, or other requirements the Commission may impose under the Atomic Energy Act of 1954 or other applicable law.

(2) The Federal Government shall not subsidize the commercial reprocessing of spent nuclear fuel and shall not undertake Federal reprocessing for commercial purposes.

(3) It shall be the policy of the Federal Government to continue with research and development projects relating to

commercial reprocessing of spent nuclear fuel and with the development of reprocessing technologies that will not result in nuclear proliferation.

DRY STORAGE FOR SPENT NUCLEAR FUEL

SEC. 202. (a) In order to carry out the policy of the Government for minimizing the transportation of spent nuclear fuel, the Secretary is authorized to carry out a demonstration program, in cooperation with the private sector, for the dry storage of spent nuclear fuel at sites adjacent to nuclear powerplants. Within one year after the date of the enactment of this Act, the Secretary shall select several sites at nuclear powerplants which are suitable for the demonstration program. In selecting the sites, the Secretary shall give preference to utilities which will soon have a shortage of interim storage capacity for spent nuclear fuel. Subject to the agreement of the affected utilities, the Secretary shall undertake at least one demonstration project for each of the following types of storage: canyon, caisson, and cask. If a utility which owns a site selected for the program wishes to participate, the utility shall enter into an agreement with the Secretary under which—

(1) the utility agrees to make the land available for the dry storage facility, to operate the facility after it is licensed, and to pay all costs associated with the operation of the facility; and

(2) the Secretary agrees to—

(A) provide such technical assistance as the utility may request in order to obtain construction and operating licenses from the Nuclear Regulatory Commission;

(B) pay for 75 per centum of the costs required to design and construct the dry storage facility.

IMPROVEMENTS IN LICENSING OF SPENT NUCLEAR FUEL STORAGE FACILITIES

SEC. 203. The Nuclear Regulatory Commission shall review its procedures relating to the licensing of facilities for the storage of spent nuclear fuel in pools, and shall consider ways in which the time required for the licensing processing could be shortened. Not later than six months after the date of the enactment of this Act, the Commission shall submit a report to the Congress containing its findings and recommendations.

97TH CONGRESS
1ST SESSION

H. R. 2881

To establish licensed permanent repositories for transuranic waste, high-level radioactive waste, and spent fuel, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 26, 1981

Mr. DERRICK introduced the following bill; which was referred jointly to the Committees on Energy and Commerce, Interior and Insular Affairs, and Science and Technology

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A BILL

To establish licensed permanent repositories for transuranic waste, high-level radioactive waste, and spent fuel, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Nuclear Waste Management Policy Act".

DEFINITIONS

SEC. 2. As used in this Act—

(1) The term "Commission" means the Nuclear Regulatory Commission.

(2) The term "disposal" means the long-term isolation of radioactive waste.

(3) The term "high-level radioactive waste" means the highly radioactive wastes resulting from the reprocessing of spent nuclear fuel. Such term includes both liquid waste which is produced directly in reprocessing, dry solid material derived from such liquid waste, and such other material as the Commission designates as high-level radioactive waste for purposes of protecting the public health and safety.

(4) The term "Indian reservation" means—

(A) the Indian reservations and dependent Indian communities referred to in clauses (a) and (b) of section 1151 of title 18, United States Code; and

(B) lands selected by Alaska Native villages or regional corporations under the provisions of the Alaska Native Claims Settlement Act.

(5) The term "Indian tribe" means any Indian tribe, band, nation, or other organized group or community of Indians recognized as eligible for the services provided to Indians by the Secretary of the Interior because of their status as Indians, including any

Alaska Native village, as defined in section 3(c) of the Alaska Native Claims Settlement Act (43 U.S.C. 1602).

(6) The term "repository" means any facility for the permanent disposal of transuranic waste, high-level radioactive waste, spent nuclear fuel, or any combination of such wastes or fuel, whether or not such facility is designed to permit the subsequent recovery of the materials placed in the repository.

(7) The term "Secretary" means the Secretary of Energy.

(8) The term "site characterization" means activities undertaken to determine the geologic characteristics of a site and to otherwise determine if a site meets the requirements applicable to sites for repositories. Such term includes borings, surface excavations, excavations of exploratory shafts, and in situ testing needed to determine the suitability of a site for a geologic repository, but does not include preliminary borings and geophysical testing needed to decide whether site characterization should be undertaken.

(9) The term "spent nuclear fuel" means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing.

(10) The term "State" means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and any other territory or possession of the United States.

(11) The term "State Review Board" means any State Review Board that meets the requirements under section 106, as so determined by the Secretary.

(12) The term "transuranic waste" means material contaminated with elements which have an atomic number greater than 92, including neptunium, plutonium, americium, and curium, which have a half-life greater than 5 years, and which are in concentrations greater than 10 nanocuries per gram or in such other concentrations as the Commission may prescribe to protect the public health and safety.

TITLE I—DISPOSAL OF TRANSURANIC WASTE, HIGH-LEVEL RADIOACTIVE WASTE, AND SPENT NUCLEAR FUEL

FINDINGS AND PURPOSE

SEC. 101. (a) FINDINGS.—The Congress finds that—

(1) radioactive waste creates potential risks and requires safe and environmentally acceptable methods of disposal;

(2) the accumulation of spent nuclear fuel from nuclear power reactors, radioactive waste from commercial nuclear reprocessing, activities related to medical research, diagnosis, and treatment, and nuclear research and development activities, and radioactive waste from other sources, has created a national problem;

(3) Federal efforts during the past 30 years to devise a permanent solution to the problems of radioactive waste disposal have not been adequate;

(4) the Federal Government has the responsibility to provide for the permanent disposal of transuranic waste, high-level radioactive waste, and spent nuclear fuel in order to protect the public health and safety and the common defense and security;

(5) the primary objective of repositories for such waste is to isolate them from the biosphere;

(6) State and public participation in the planning and development of permanent repositories for the disposal of radioactive waste is essential in order to promote confidence among the public with regard to the safety of disposal of radioactive waste;

(7) the implementation of a radioactive waste repository program in accordance with this title would provide reasonable assurance that methods of safe dis-

posal of transuranic waste, high-level radioactive waste, and spent nuclear fuel can be available when such methods are needed; and

(8) radioactive waste has become a major issue of public concern, and stringent precautions must be taken to ensure that radioactive waste does not adversely affect the public health and safety of this or future generations.

(b) PURPOSE.—It is the purpose of this title to—

(1) establish a schedule for the siting, construction, and operation of licensed permanent repositories for transuranic waste, high-level radioactive waste, and spent nuclear fuel which will provide the Congress with a reasonable assurance that the public will be adequately protected from the hazards posed by such wastes;

(2) establish the Federal responsibility for the disposal of such wastes from nuclear activities; and

(3) establish a definite Federal policy for the disposal of such wastes pursuant to which State and local government participation is provided.

IDENTIFICATION OF SITES FOR REPOSITORIES

SEC. 102. (a) GUIDELINES.—Not later than June 30, 1982, the Secretary shall, in consultation with the Council on Environmental Quality, the Environmental Protection

Agency, the Nuclear Regulatory Commission, and the United States Geological Survey, issue guidelines for the recommendation of sites for repositories. Under the guidelines the Secretary shall specify factors that would disqualify a site development as a repository, including factors pertaining to the location of valuable natural resources, proximity to populations, hydrogeophysics, seismic activity, and nuclear defense activities. The guidelines shall require the Secretary to consider the various geologic media in which sites for repositories may be located and, to the extent practicable, to recommend sites in different geologic media. The Secretary shall use the guidelines established under this subsection in considering sites to be recommended under subsection (b). The development of guidelines under this subsection shall be considered a preliminary decisionmaking activity and shall not be subject to the requirements of section 102(2)(C) of the National Environmental Policy Act of 1969.

(b) RECOMMENDATIONS BY THE SECRETARY.—(1) Not later than January 1, 1985, the Secretary shall identify and recommend to the President at least two sites which the Secretary determines are suitable for site characterization. To the maximum extent practicable, the Secretary shall recommend sites located in different geologic media. Each recommendation of a site shall include a detailed statement of the basis for the recommendation. If the Secretary recommends a site to the President, the Secretary shall notify the State Review Board of the State in which the site is located, or the governing body of any Indian tribe on whose reservation the site is located, of the Secretary's recommendation and the basis for such recommendation.

(2) Before recommending to the President any site for characterization, the Secretary shall hold public hearings in the vicinity of the site to inform the residents of the area in which the site is located of the proposed recommendation and to receive their comments.

(c) PRESIDENTIAL REVIEW OF RECOMMENDED SITES.—(1) The President shall review each site recommended by the Secretary under subsection (b). Within 60 days after the submission of a recommendation for a site, the President shall either approve or disapprove the site, and transmit his decision to the Secretary and the State Review Board of the State in which the site is located. If the President fails to approve or disapprove the site in accordance with this paragraph during such 60-day period, or within such period fails to invoke his authority under paragraph (2) to delay the determination, the site shall be considered to be approved.

(2) The President may delay for not more than 6 months his decision under paragraph (1) to approve or disapprove a site upon determining that the information provided with the

recommendation is not sufficient to permit a decision within the 60-day period referred to in paragraph (1). The President may invoke his authority under this paragraph by submitting written notice to the Congress, within such period, of his intent to utilize the authority provided under this paragraph. If the President invokes his authority under this paragraph but fails to approve or disapprove a site at the end of such 6-month period, the site shall be considered to be approved.

(d) CONTINUATION OF SITE SCREENING.—After the identification of sites under subsection (b), the Secretary shall continue to screen other sites to determine their suitability for site characterization.

SITE CHARACTERIZATION

SEC. 103. (a) IN GENERAL.—The Secretary shall carry out in accordance with this section appropriate site characterization activities at each site approved under section 102.

(b) NUCLEAR REGULATORY COMMISSION AND STATE REVIEW BOARDS.—(1) Before proceeding to sink shafts at any site, the Secretary shall submit for such site to the Commission and to the State Review Board of the State in which the site is located, or to the governing body of any Indian tribe on whose reservation the site is located, for their review and comment—

(A) an environmental assessment of the nonradiological impacts of the site characterization activities planned for such site and a discussion of alternative activities which may be undertaken to avoid such impacts;

(B) a plan for site characterization activities to be conducted at such site which plan shall include—

(i) a description of the site;

(ii) a description of the site characterization activities, including the extent of planned excavations, plans for any onsite testing of radioactive or nonradioactive material, investigation activities which may affect the ability of the site to isolate radioactive wastes and spent fuel, and provisions to control any adverse, safety-related impacts from site characterization activities;

(iii) plans for the decontaminating and decommissioning of the site if it is determined unsuitable for application for licensing as a repository;

(iv) criteria to be used to determine if the site is acceptable as a site for a repository; and

(v) any other information required by the Commission; and

(C) proposals describing the possible form or packaging for the waste material and spent fuel which would be emplaced in the repository.

(2) During the conduct of site characterization activities at a site, the Secretary shall report to the Commission, and to either the State Review Board of the State in which the site is located or the governing body of any Indian tribe on whose reservation the site is located, on the nature and extent of such activities and the information developed from such activities.

(c) TESTS.—The Secretary shall conduct at sites at which site characterization activities are being conducted such tests as may be necessary to provide the necessary data for an application for a construction authorization for a repository at the site and for compliance with the National Environmental Policy Act of 1969. The Secretary shall report to the Commission on the tests conducted at a site pursuant to this subsection and on the information developed from such tests.

(d) RESTRICTIONS.—(1) In conducting site characterization activities or tests pursuant to subsection (c)—

(A) the Secretary may not use radioactive materials at a site unless the Commission and the Secretary concur that such use is necessary to provide data for the submission of an application for a construction authorization for a repository at the site;

(B) if radioactive materials are placed in a site, the Secretary shall place the smallest quantity necessary to determine the suitability of the site for a repository, but in no event more than the curie equivalent of 10 metric tons of spent fuel; and

(C) any radioactive material used or placed on a site shall be fully retrievable.

(2) If characterization activities are terminated at a site for any reason, the Secretary shall remove any nuclear waste, spent nuclear fuel, or other radioactive materials at or in the site as promptly as practicable.

SITE APPROVAL AND CONSTRUCTION AUTHORIZATIONS

SEC. 104. (a) IN GENERAL.—If after completion of site characterization activities at a site—

(1) the Secretary determines that the site meets the requirements applicable to repositories, the Secretary shall proceed in accordance with this section to secure approval of the site and a construction authorization for construction of a repository at the site, or

(2) the Secretary determines that the site does not meet such requirements, the Secretary shall notify the State Review Board of the State in which the site is located, or the governing body of the Indian tribe on whose reservation the site is located, of such determination.

(b) HEARINGS AND PRESIDENTIAL RECOMMENDATION.—(1) If after completion of site characterization activities at a site the Secretary determines that the site meets the requirements applicable to repositories, the Secretary shall hold public hearings in the vicinity of the site to inform the residents of the area in which the site is located of the determination of the Secretary and to receive their comments. If upon completion of the hearings the Secretary affirms the determination, the Secretary shall submit to the President a recommendation that the President approve the site for the development of a repository. Together with any recommendation of a site under this paragraph, the Secretary shall submit to the President a report containing the following:

(A) A description of the proposed repository, including engineering plans for the facility.

(B) A description of the waste form or packaging proposed for use at the repository.

(C) A discussion of data, obtained in site characterization activities, relating to the safety of the repository site.

(D) A final environmental impact statement for the site and the design of the repository as required under the National Environmental Policy Act of 1969 together with comments made concerning the environmental impact statement by the Department of the Interior, the Council on Environmental Quality, the

Environmental Protection Agency, and the Nuclear Regulatory Commission.

(E) Preliminary comments of the Nuclear Regulatory Commission concerning the extent to which the at-depth site characterization analysis and the waste form proposal for the site seem to be sufficient for inclusion in any application to be submitted by the Department of Energy for licensing of the site as a permanent repository for high-level radioactive waste and spent fuel.

(F) The views of any State Review Board, or governing body of any Indian tribe, which is affected by such site, as determined by the Secretary, together with the Secretary's response to such views.

(G) Such other information as the Secretary considers appropriate to provide a complete statement of the basis for the recommendation of the site for licensing as a repository for the disposal of high-level radioactive waste and spent fuel.

(2) Not later than January 1, 1987, the President shall submit to the Congress a recommendation of a site which the President considers qualified for application for license as a repository. The President shall submit with such recommendation a copy of the report for such site prepared by the Secretary under paragraph (1). After such date, the President

may submit to the Congress recommendations for other sites which the President also considers suitable for such purpose, together with such reports.

(3) If the approval of a site recommendation for the initial repository proposed as required under paragraph (2) does not take effect as a result of a disapproval by the Congress under section 105, the President shall submit to the Congress, within one year after the disapproval of the recommendation, a recommendation of another site for an initial repository. The President may not recommend the approval of any site under this paragraph unless the Secretary has recommended to the President under paragraph (1) approval of such site and has submitted to the President a report for the site as required under such paragraph.

(c) SUBMISSION OF APPLICATION.—If the President recommends to the Congress a site for a repository under subsection (b) and the site designation is permitted to take effect under section 105 (pertaining to congressional disapproval), the Secretary shall submit to the Commission a license application for the construction of a repository at the site within 90 days after the date on which the recommendation of the site designation is effective under such section and shall provide the State Review Board of the State in which the site is located, or the governing body of any Indian tribe on whose reservation the site is located, a copy of the application.

(d) STATUS REPORT FOR CONSTRUCTION PERMIT AUTHORIZATION.—No later than 2 years after the date on which an application for a license application is submitted under subsection (c), the Commission shall submit a report to the Congress describing the proceedings undertaken through such date with regard to the authorization application submitted, including a description of—

(1) major unresolved safety issues, and the Secretary's explanation of design and operation plans for resolving such issues;

(2) matters of contention regarding the application;

(3) any Commission actions regarding the granting or denial of the authorization.

(e) COMMISSION ACTION.—The Commission shall consider a license application for the construction of a repository in accordance with the laws applicable to such applications, except that the Commission shall issue a final decision approving or disapproving the first such application not later than—

(1) January 1, 1990, or

(2) the expiration of four years after the date of the submission of the application,

whichever occurs later.

REVIEW OF REPOSITORY SITE SELECTION

SEC. 105. (a) IN GENERAL.—The designation of a site for a repository shall be effective at the end of the 30-day period beginning on the date that the President recommends the site to the Congress under section 104 unless a State Review Board has submitted to the Congress a petition for disapproval under section 106 or the governing body of an Indian tribe has submitted such a petition under section 107. If any such petition has been submitted, the approval of the designation shall not be effective except as provided under subsection (b).

(b) CONGRESSIONAL REVIEW OF SITES.—(1) If the President submits to the Congress under section 104 a recommendation for approval of a site as a repository and either a State Review Board submits to the Congress a petition for disapproval under section 106 or the governing body of an Indian tribe submits to the Congress such a petition under section 107, the designation of such site for a repository shall be effective at the end of the first period of 90 calendar days of continuous session of the Congress after the date of transmittal of the recommendation of approval by the President to the Congress, unless, during such period, either House of the Congress passes a resolution the matter after the resolving clause of which reads as follows: "The approves the petition submitted by regarding the disapproval of the site at —for a repository for the disposal of high-level radioactive waste, transuranic waste, and spent fuel."; (the first blank space being filled with the designation of the appropriate House of the Congress; the second blank space being filled with the name of the State Review Board or Indian tribe governing body the petition of which is approved; the third blank space being filled with the geographic location of the proposed repository site). For purposes of paragraphs (3) through (7) of this subsection, the term "resolution" means a resolution described by this paragraph.

(2) Paragraphs (3) through (7) of this subsection are enacted by Congress—

(A) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by paragraph (1) of this subsection; and the provisions of such paragraphs supersede other rules only to the extent that they are inconsistent therewith; and

(B) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of the House.

(3) A resolution once introduced with respect to any site designation shall immediately be referred to a committee (and all resolutions with respect to the same site designation shall be referred to the same committee) by the President of the Senate or the Speaker of the House of Representatives, as the case may be.

(4)(A) If the committee to which a resolution with respect to a site designation has been referred has not reported it at the end of 20 calendar days after its referral, it shall be in order to move either to discharge the committee from further consideration of such resolution or to discharge the committee from further consideration of any other resolution with respect to such site designation which has been referred to the committee.

(B) A motion of discharge may be made only by an individual favoring the resolution, shall be highly privileged (except that it may not be made after the committee has reported a resolution with respect to the same site designation) and debate thereon shall be limited to not more than one hour, to be divided equally between those favoring and those opposing the resolution. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(C) If the motion to discharge is agreed to or disagreed to, the motion may not be renewed, nor may another motion to discharge the committee be made with respect to any other resolution with respect to the same site designation.

(5)(A) When the committee has reported, or has been discharged from further consideration of, a resolution it shall be at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) to move to proceed to the consideration of the resolution. The motion shall be highly privileged and shall not be debatable. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(B) Debate on the resolution referred to in subparagraph (A) of this paragraph shall be limited to not more than 5 hours, which shall be divided equally between those favoring and those opposing such resolution. A motion further to limit debate shall not be debatable. An amendment to, or motion to recommit, the resolution shall not be in order, and it shall not be in order to move to reconsider the vote by which such resolution was agreed to or disagreed to.

(6)(A) Motions to postpone, made with respect to the discharge from committee, or the consideration of, a resolution, and motions to proceed to the consideration of other business, shall be decided without debate.

(B) Appeals from the decision of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to a resolution shall be decided without debate.

(7) Notwithstanding any of the provisions of this subsection, if a House has approved a resolution with respect to a site designation, then it shall not be in order to consider in that House any other resolution with respect to the same such site designation.

(c) COMPUTATION OF DAYS.—For purposes of subsections (a) and (b) of this section—

(1) continuity of session of Congress is broken only by an adjournment sine die; and

(2) the days on which either House is not in session because of an adjournment of more than 3 days to a day certain are excluded in the computation of the 90-day period.

STATE REVIEW BOARDS

SEC. 106. (a) DEFINITION.—(1) For purposes of this title, a State Review Board of a State is an entity of the State which is—

(A) created under State law with the authority described in paragraph (2) and the composition prescribed by paragraph (3); and

(B) determined by the Secretary to be established in accordance with this section.

(2) A State Review Board shall be authorized under State law to—

(A) review activities under this title and activities of the Commission with respect to any site in the State for a repository to determine the potential economic, environmental, social, and public health and safety impacts of the repository on the State and its residents;

(B) be a representative of the State in any proceeding before the Commission respecting a site for a repository in the State; and

(C) submit, in accordance with subsection (b), to the Congress petitions requesting the Congress to disapprove, in accordance with section 105, construction of repositories in the State.

(3) The State Review Board shall consist of members representing the interests of the general public in the State, including members appointed to represent the interests of any Indian tribes and local governments which would be affected by the repository.

(4) The State Review Board shall hold meetings open for public participation not less than once every 4 months, at which meetings the Board shall receive and to the extent practicable place on its agenda matters submitted by Board members.

(5) The authority of State Review Boards shall not be applicable with respect to sites located on Indian reservations. Any references contained in this section to sites located within a State shall not be deemed to include sites located on Indian reservations within the State.

(b) PARTICIPATION IN REPOSITORY LICENSING DECISIONS.—Upon the submission by the President to the Congress of the recommendation of a site for a repository, the State Review Board of the State in which the site is located may, by majority vote of the membership of the Board, submit a petition to the Congress requesting that the Congress disapprove the site designation. A State Review Board may submit such a petition to the Congress not later than the 30th day after the date that the President recommends the site to the Congress under section 104. A petition shall be considered to be submitted to the Congress on the date of the transmittal of the petition to the Speaker of the House and the President pro tempore of the Senate. The petition shall be accompanied by a statement of reasons explaining why the petition should be granted.

(c) FINANCIAL ASSISTANCE.—(1) Subject to paragraph (2), and to the availability of funds to carry out this paragraph, the Secretary shall make grants to the State Review Boards of each State in which a site for a repository has been approved under section 102(c). Grants under this paragraph shall be made under such terms and conditions as the Secretary may prescribe, and the amount of funds provided a Board under this paragraph in any fiscal year may not exceed 75 percent of the costs of the operation of the Board in such year as determined by the Secretary. Salaries and travel expenses which would ordinarily be incurred by any State or local government shall not be considered part of the budget of the Board and shall not be eligible for payment under this section.

(2) A State Review Board may not receive any grant after the expiration of one year after—

(A) the date the Secretary notifies the State Review Board under section 104(a)(2) that a site in the State does not meet the requirements applicable to repositories,

(B) the date on which the site is disapproved by the Congress under section 105, or

(C) the date on which the Commission disapproves an application for a construction authorization for a repository at a site in the State, whichever occurs first unless there is another site in the State approved under section 102(c) with respect to which the actions described in subparagraphs (A), (B), and (C) have not been taken.

(3) At the end of the one-year period beginning on the effective date of any operating license for a repository in a State, no Federal funds shall be made available under this subsection for the State Review Board of the State in which the repository is located, except for—

(A) such funds as may be necessary to support Board activities related to any other repository located in, or proposed to be located in, such State, and for which an operating license has not been in effect for more than one year; and

(B) such funds as may be necessary to support Board activities pursuant to agreements or contracts for assistance entered into under subsection (c) by the Board with the Federal Government before the end of such one-year period.

(d) CONSULTATION.—(1) The Secretary, the Nuclear Regulatory Commission, and other agencies involved in the construction or operation of a waste repository in a State shall provide to the State Review Board of such State, and to the governing body of any Indian tribe on or adjacent to whose reservation the repository site is located, timely and complete information regarding determinations or plans made with respect to the siting, development, design, construction, operation, or regulation of the repository.

(2) In performing any study of an area within a State for the purpose of determining the suitability of the area for a repository and in subsequently developing and loading any repository within a State, the Secretary shall consult and cooperate with the State Review Board of the State and the governing body of any affected Indian tribe in an effort to resolve the concerns of the State and any affected Indian tribe regarding the public health and safety, environmental, and economic impacts of any such repository. In carrying out his duties under this Act, the Secretary shall take such concerns into account to the maximum extent feasible.

(3) As soon as possible after notifying a State of his decision to study an area within such State as a possible repository site, the Secretary shall seek to enter into a written agreement with the State Review Board of the State and, where appropriate, a separate agreement with the governing body of any affected Indian tribe, setting forth the procedures under which the requirements of paragraphs (1) and (2) shall be carried out. The written agreement shall specify procedures—

(A) by which the State or the governing body of the Indian tribe (as the case may be) may study, determine, comment on, and make recommendations with regard to the possible health and safety, environmental, and economic impacts of any such repository;

(B) by which the Secretary may consider and respond to comments and recommendations made by the State Review Board or the governing body of the Indian tribe (as the case may be), including the period in which the Secretary may so respond;

(C) by which the Secretary and either the State Review Board or the governing body of the affected Indian tribe (as the case may be) may review or modify the agreement periodically; and

(D) for public notification of the procedures specified under subparagraphs (A) through (C).

PARTICIPATION OF INDIAN TRIBES

SEC. 107. (a) AUTHORITIES OF TRIBAL GOVERNING BODIES.—The governing body of any Indian tribe on whose reservation is located a site approved for site characterization under section 102(c) shall have the authorities described under sections 106(a)(2)(A) and 106(a)(2)(C).

(b) ASSISTANCE TO TRIBES.—(1) Subject to the availability of funds to carry out this section, the Secretary shall provide to the governing body of each Indian tribe referred to in subsection (a) such funds as may be necessary to provide technical assistance to the tribe, and to assist the tribe in conducting the activities described under sections 106(a)(2)(A) and 106(a)(2)(C) and other similar activities related to the repository.

(2) No funds may be made available to the governing body of an Indian tribe under this section with respect to a site located on the reservation of such tribe after the expiration of one year after—

(A) the date the Secretary notifies such governing body under section 104(a)(2) that the site does not meet the requirements applicable to repositories,

(B) the date on which the site is disapproved by the Congress under section 105, or

(C) the date on which the Commission disapproves an application for a construction authorization for a repository at the site,

whichever occurs first unless there is another site located on the reservation of such tribe and approved under section 102(c) with respect to which the actions described in subparagraphs (A), (B), and (C) have not been taken.

(3) At the end of the one-year period beginning on the effective date of any operating license for a repository located on a reservation, no Federal funds shall be made available under this subsection to the governing body of the Indian tribe on whose reservation the repository is located, except for—

(A) such funds as may be necessary to support activities related to any other repository located in, or proposed to be located in, such reservation, and for which an operating license has not been in effect for more than one year; and

(B) such funds as may be necessary to support activities pursuant to agreements or contracts for assistance entered into by the governing body of the Indian tribe with the Federal Government before the end of such one-year period.

JUDICIAL REVIEW OF AGENCY ACTIONS

SEC. 108. (a) IN GENERAL.—Notwithstanding any other provision of law, any action by the Secretary, or failure to take action, under sections 102 through 104, any actions taken by the Commission in granting or denying any construction authorization application submitted under section 104 or any application for an operating permit for a repository, and any actions described in section 109 shall not be subject to judicial review except as authorized by subsection (b).

(b) JUDICIAL REVIEW OF ACTIONS.—(1) A civil action for judicial review of an administrative action described in subsection (a) may be brought only if commenced not later than the 180th day following the date of such action, except that the court may extend the time for bringing such a civil action if the court determines that the facts on which the civil action is based were not reasonably available within the applicable 180-day time limit.

(2) Jurisdiction of any civil action for judicial review under this subsection shall be in the United States Court of Appeals for the District of Columbia Circuit, acting as a special court. Except for review by the Supreme Court, no other court of the United States, or any State, territory, or possession of the United States, or of the District of Columbia, shall have jurisdiction of any such civil action.

(c) Nothing in this section shall preclude the exercise of jurisdiction by the Supreme Court of the United States as provided by the Constitution of the United States.

EXPEDITED AUTHORIZATIONS

SEC. 109. (a) ISSUANCE OF AUTHORIZATIONS.—(1) Subject to paragraph (2), to the extent that the taking of any action related to the characterization of a site or the construction or initial operation of a repository under this title requires a certificate, right-of-way, permit, lease, or other authorization from a Federal officer or agency, such officer or agency shall issue or grant any such authorization at the earliest practicable date, to the extent permitted by the applicable provisions of law administered by such officer or agency. All actions of a Federal officer or agency with respect to consideration of applications or requests for the issuance or grant of any such authorization shall be expedited, and any such application or request shall take precedence over any similar applications or requests not related to such repositories.

(2) The requirements of paragraph (1) shall not be applicable in the case of any action related to any permit or other authorization issued or granted by, or requested from, the Nuclear Regulatory Commission.

(b) TERMS OF AUTHORIZATIONS.—(1) Any authorization issued or granted under subsection (a) shall include such terms and conditions as may be required by law, and may include terms and conditions permitted by law.

(2) Except as provided in the second sentence of this subsection, nothing contained in this section shall be construed to impair the authority of any Federal officer or agency to add to, amend, or abrogate any term or condition included in any authorization issued or granted pursuant to subsection (a) if such action is otherwise permitted under applicable laws administered by such officer or agency. In the case of any such action which is permitted but not required by law, the Federal officer or agency shall have no authority to take such action if the terms and conditions to be so added, or as so amended, would have the effect of terminating the characterization, construction, or initial operation of the po-

tential or permanent repository which the authorization affects.

SCHEDULE FOR CERTAIN STANDARDS AND CRITERIA

SEC. 110. (a) EPA STANDARDS.—Not later than November 1, 1982, the Administrator of the Environmental Protection Agency, pursuant to authority under other provisions of law, shall, by rule, promulgate generally applicable standards for protection of the general environment from radioactive material.

(b) CRITERIA.—Not later than November 1, 1982, the Commission, pursuant to authority under other provisions of law, shall, by rule, promulgate criteria which it will apply in reviewing under the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974, applications for construction authorizations for the construction of repositories.

DISPOSAL OF SPENT FUEL

SEC. 111. Notwithstanding any other provision of this Act, any repository for the disposal of high-level radioactive waste and spent fuel which is designed and constructed under this title shall be so designed and constructed that the spent fuel may be retrieved, during an appropriate period of operation of the facility, for any reasons pertaining to the public safety or for the purpose of permitting the recovery of the economically valuable contents of the spent fuel.

AUTHORIZATION OF APPROPRIATIONS; CONTRACT AUTHORITY

SEC. 112. (a) AUTHORIZATION.—There are authorized to be appropriated to the Secretary to carry out this title $5,000,000 for the fiscal year ending September 30, 1982.

(b) CONTRACTS.—The authority of the Secretary to enter into contracts under this title shall be effective for any fiscal year only to such extent or in such amounts as are provided in advance by appropriation Acts.

ACCOUNTING OF EXPENDITURES

SEC. 113. (a) RECORD OF EXPENDITURES.—The Secretary shall maintain adequate records of all expenditures made under this title which, together with expenditures made by the United States under other laws in connection with the management, interim storage, and disposal of nuclear wastes and spent fuel, shall provide the basis for any fees to be assessed as described under subsection (b).

(b) FEE COLLECTION.—Not later than June 30, 1985, the Secretary shall submit to the Congress a report proposing fees to be collected from the persons or entities who hold title to any nuclear waste or spent nuclear fuel which is subject to interim storage or disposal by the Secretary, to offset all construction, operation, administrative, and other costs incurred by the Secretary in providing for the management, interim storage, and disposal of such waste or spent nuclear fuel. The report shall review appropriate mechanisms for the collection and expenditure of fees, including establishment of a revolving fund into which such fees might be paid and from which funds could be made available for disposal costs, without expense to the Federal Government.

TRANSPORTATION OF NUCLEAR WASTES

SEC. 114. Any person or entity holding title to any spent nuclear fuel, transuranic waste, or high-level radioactive waste which is subject to interim storage or permanent disposal by the Secretary shall be responsible for providing for the safe transportation of such nuclear waste or such fuel to any interim storage or repository site. The Government may not take title to any such nuclear waste or fuel until such materials have been transported, in accordance with applicable regulations, to a repository for permanent disposal.

ANNUAL WASTE MANAGEMENT REPORTS

SEC. 115. (a) The Secretary, in consultation with the Commission, the Council on Environmental Quality, the Administrator of the Environmental Protection Agency, the Secretary of the Interior, the Secretary of Transportation, and the State Planning Council on Nuclear Waste, shall submit to the President and to the Congress not later than March 1, 1982, and not later than March 1 of each subsequent year through 1987, a nuclear waste management plan describing activities undertaken and being planned for the management of nuclear waste and spent nuclear fuel. The plan shall be coordinated through the Office of the Assistant Secretary, Department of Energy, which shall have overall responsibility for duties of the department relating to nuclear waste management. To the extent feasible, the plan shall incorporate the views of each agency with which the Secretary is required to consult, and, to the extent that there is disagreement among such agencies regarding any aspect of the plan, minority views shall be reported in the plan.

(b) Each plan submitted under this section shall describe the progress made by the Government in implementing this Act. The plan submitted by March 1, 1982, shall also contain an assessment of the feasibility of providing for payments to States or local governments to mitigate impacts caused by the development of repositories, as well as other impacts associated with nuclear waste management. Among the items to be considered shall be a payment-in-lieu of taxes program to provide compensation for any Federal property used as a repository site.

TITLE II—DRY STORAGE DEMONSTRATION PROGRAM

PAYMENTS FOR DRY STORAGE FACILITIES

SEC. 201. (a) In order to demonstrate the feasibility of providing dry storage for spent nuclear fuel, the Secretary may enter into agreements with owners of commercial nuclear powerplants, under which the Secretary agrees to pay such owners the costs of designing and constructing dry storage facilities for spent nuclear fuel to be located at the sites of the powerplants where the fuel is generated. The Secretary shall seek to enter into such agreements with respect to the design and construction of dry storage facilities using each of the following technologies: transport cask storage, dry caisson storage, and concrete silo storage. In carrying out this section, the Secretary shall give priority to those utilities which seem most likely to fill their existing storage pools, do not have the capability of utilizing alternative technologies for storage of spent nuclear fuel, and might be required to shut down reactors at their powerplants if additional storage capacity were not provided through agreements under this section.

(b) Any agreement entered into under this section with the owner of a nuclear powerplant shall—

(1) specify the type of dry storage facility to be constructed;

(2)(A) specify the amount required to design and construct the facility in accordance with standards established by the Commission under section 202, and (B) provide that the Secretary shall pay such amount to the owner of the nuclear powerplant in such installments, and subject to such conditions, as the parties may determine; and

(3) provide (at the discretion of the Secretary) for certain adjustments in the amount to be paid under paragraph (2) if the estimated costs exceed the actual costs for design and construction.

(c) The Secretary shall seek to enter into agreements to carry out this section as soon as possible after funds are made available for such purpose.

COMMISSION LICENSING REQUIREMENTS

SEC. 202. The Commission shall establish requirements applicable to permits and licenses for the construction and operation of dry storage facilities for spent nuclear fuel not later than one year after the date of the enactment of this Act.

I

97TH CONGRESS
1ST SESSION

H. R. 3809

To provide for repositories for the disposal of high-level radioactive waste, transuranic waste, and spent nuclear fuel, to amend provisions of the Atomic Energy Act of 1954 relating to low-level waste, to modify the Price-Anderson provisions of the Atomic Energy Act of 1954 and certain other provisions pertaining to facility licensing and safety, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 4, 1981

Mr. UDALL introduced the following bill; which was referred jointly to the Committees on Energy and Commerce, Interior and Insular Affairs, and Rules

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A BILL

To provide for repositories for the disposal of high-level radioactive waste, transuranic waste, and spent nuclear fuel, to amend provisions of the Atomic Energy Act of 1954 relating to low-level waste, to modify the Price-Anderson provisions of the Atomic Energy Act of 1954 and certain other provisions pertaining to facility licensing and safety, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. This Act may be cited as the "Atomic Energy Act Amendments of 1981".

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TITLE I—AMENDMENTS RELATING PRIMARILY TO RADIOACTIVE WASTE

Subtitle A—High-Level Radioactive Waste Repositories

PART 1—GENERAL PROVISIONS

DEFINITIONS

SEC. 101. As used in this subtitle—

(1) The term "Commission" means the Nuclear Regulatory Commission.

(2) The term "disposal" means the long-term isolation of radioactive waste.

(3) The term "high-level radioactive waste" means the highly radioactive wastes resulting from the reprocessing of spent nuclear fuel, liquid waste which is produced directly in reprocessing, any solid material into which such liquid waste is made, and such other highly radioactive material as the Commission designates as high-level radioactive waste following a determination that such designation is necessary to protect the public health and safety.

(4) The term "Indian reservation" means—

(A) the Indian reservations and dependent Indian communities referred to in clauses (a) and

(b) of section 1151 of title 18, United States Code; and

(B) lands selected by Alaska Native villages or regional corporations under the provisions of the Alaska Native Claims Settlement Act.

(5) The term "Indian tribe" means any Indian tribe, band, nation, or other organized group or community of Indians recognized as eligible for the services provided to Indians by the Secretary of the Interior because of their status as Indians, including any Alaska Native village, as defined in section 3(c) of the Alaska Native Claims Settlement Act (43 U.S.C. 1602).

(6) The term "repository" means any facility for the permanent deep geologic disposal of transuranic waste, high-level radioactive waste, spent nuclear fuel, or any combination of such wastes or fuel, whether or not such facility is designed to permit the subsequent recovery of the materials placed in the respository.

(7) The term "Secretary" means the Secretary of Energy.

(8) The term "site characterization" means activities undertaken to evaluate the geologic and other characteristics of a site. Such term includes borings, surface excavations, excavations of exploratory shafts,

and in situ testing needed to evaluate the suitability of a site for a repository, but does not include preliminary borings and geophysical testing needed to assess whether site characterization should be undertaken.

(9) The term "spent nuclear fuel" means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing.

(10) The term "State" means any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and any other territory or possession of the United States.

(11) The term "State review board" means any State review board that meets the requirements under section 116, as so determined by the Secretary.

(12) The term "transuranic waste" means material contaminated with elements which have an atomic number greater than ninety-two, including neptunium, plutonium, americium, and curium, which have a half life greater than five years, and which are in concentrations greater than ten nanocuries per gram or in such other concentrations as the Commission deter-

mines is necessary to protect the public health and safety.

PART 2—DISPOSAL OF HIGH-LEVEL RADIOACTIVE WASTE, TRANSURANIC WASTE, AND SPENT NUCLEAR FUEL

FINDINGS AND PURPOSE

SEC. 111. (a) FINDINGS.—The Congress finds that—

(1) radioactive waste creates potential risks and requires safe and environmentally acceptable methods of disposal;

(2) the accumulation of spent nuclear fuel from nuclear power reactors, radioactive waste from commercial nuclear reprocessing, activities related to medical research, diagnosis, and treatment, and nuclear research and development activities, and radioactive waste from other sources, have created a national problem;

(3) Federal efforts during the past thirty years to devise a permanent solution to the problems of radioactive waste disposal have not been adequate;

(4) the Federal Government has the responsibility to provide for the permanent disposal of transuranic waste, high-level radioactive waste, and spent nuclear fuel in order to protect the public health and safety and the common defense and security;

(5) State and public participation in the planning and development of repositories for the disposal of radioactive waste is essential in order to promote confidence among the public with regard to the safety of disposal of radioactive waste;

(6) the implementation of a radioactive waste repository program in accordance with this subtitle would provide reasonable assurance that methods of safe disposal of transuranic waste, high-level radioactive waste, and spent nuclear fuel can be available when such methods are needed; and

(7) radioactive waste has become a major issue of public concern, and appropriate precautions must be taken to ensure that radioactive waste does not adversely affect the public health and safety of this or future generations.

(b) PURPOSE.—It is the purpose of this subtitle to—

(1) establish a schedule for the siting, construction, and operation of licensed repositories for transuranic waste, high-level radioactive waste, and spent nuclear fuel which will provide the Congress with a reasonable assurance that the public will be adequately protected from the hazards posed by such wastes;

(2) establish the Federal responsibility for the disposal of such wastes from nuclear activities; and

(3) establish a definite Federal policy for the disposal of such wastes.

IDENTIFICATION OF SITES FOR REPOSITORIES

SEC. 112. (a) GUIDELINES.—Not later than January 30, 1981, the Secretary shall, in consultation with the Council on Environmental Quality, the Environmental Protection Agency, the Nuclear Regulatory Commission, and the United States Geological Survey, issue general guidelines for the recommendation of sites for repositories. Under such guidelines the Secretary shall specify factors that would disqualify a site from development as a repository, including factors pertaining to the location of valuable natural resources, proximity to populations, hydrogeophysics, seismic activity, and nuclear defense activities. The guidelines shall require the Secretary to consider the various geologic media in which sites for repositories may be located and, to the extent practicable, to recommend sites in different geologic media. The Secretary shall use guidelines established under this subsection in considering sites to be recommended under subsection (b).

(b) RECOMMENDATIONS BY THE SECRETARY.—(1) Not later than January 1, 1982, the Secretary shall identify and recommend to the President at least two sites which the Secretary determines are suitable for site characterization. Not later than February 1, 1985, the Secretary shall identify and recommend to the President at least two additional sites which the Secretary determines are suitable for such purpose. Each recommendation of a site shall include a detailed statement of the basis for the recommendation. If the Secretary recommends a site to the President, the Secretary shall notify the State review board of the State in which the site is located, or the governing body of any Indian tribe on whose reservation the site is located, of the Secretary's recommendation and the basis for such recommendation.

(2) Before recommending to the President any site for characterization, the Secretary shall hold public hearings in the vicinity of the site to inform the residents of the area in which the site is located of the proposed recommendation and to receive their comments.

(c) PRESIDENTIAL REVIEW OF RECOMMENDED SITES.—(1) The President shall review each site recommendation of the Secretary under subsection (b). Within sixty days after the submission of a recommendation for a site, the President, in his discretion, may either approve or disapprove the site, and shall transmit any such decision to the Secretary and to either the State review board of the State in which the site is located or the governing body of the Indian tribe on whose reservation the site is located. If the President fails to approve or disapprove the site during such sixty-day period, or within such period fails to invoke his authority under paragraph (2) to delay the determination, the site shall be considered to be approved.

(2) The President may delay for not more than six months his decision under paragraph (1) to approve or disapprove a site upon determining that the information provided with the recommendation is not sufficient to permit a decision within the sixty-day period referred to in paragraph (1). The President may invoke his authority under this paragraph by submitting written notice to the Congress, within such period, of his intent to utilize the authority provided under this paragraph. If the President invokes his authority under this paragraph but fails to approve or disapprove a site at the end of such six-month period, the site shall be considered to be approved.

(d) CONTINUATION OF SITE SCREENING.—After the identification of sites under subsection (b), the Secretary shall continue to identify and study other sites to determine their suitability for site characterization.

(e) PRELIMINARY ACTIVITIES.—Any activities of the President or the Secretary under this section shall be considered to be preliminary decisionmaking activities and not major Federal actions under section 102(2)(C) of the National Environmental Policy Act of 1969.

SITE CHARACTERIZATION

SEC. 113. (a) IN GENERAL.—The Secretary shall carry out in accordance with this section appropriate site characterization activities at each site approved under section 112.

(b) NUCLEAR REGULATORY COMMISSION AND STATE REVIEW BOARDS.—(1) Before proceeding to sink shafts at any site, the Secretary shall submit for such site to the Commission and to the State review board of the State in which the site is located, or to the governing body of any Indian tribe on whose reservation the site is located, for their review and comment—

(A) an environmental assessment of the nonradiological impacts of the site characterization activities planned for such site and a discussion of alternative activities relating to site characterization which may be undertaken to avoid such impacts;

(B) a general plan for site characterization activities to be conducted at such site which plan shall include—

(i) a description of the site;

(ii) a description of the site characterization activities, including the extent of planned excavations, plans for any onsite testing of radioactive or nonradioactive material, investigation activities which may affect the ability of the site to isolate radioactive wastes and spent nuclear fuel, and provisions to control likely adverse, safety-related impacts from site characterization activities;

(iii) plans for the decontaminating and decommissioning of the site if it is determined unsuitable for application for licensing as a repository; and

(iv) any other information required by the Commission; and

(C) proposals describing the possible form or packaging for the waste material and spent nuclear fuel which would be emplaced in the repository.

(2) During the conduct of site characterization activities at a site, the Secretary shall report to the Commission, and to either the State review board of the State in which the site is located or the governing body of any Indian tribe on whose reservation the site is located, on the nature and extent of such activities and the information developed from such activities.

(c) TESTS.—The Secretary shall conduct at sites at which site characterization activities are being conducted such tests as the Secretary considers necessary to provide the necessary data for an application to be submitted to the Commission for a construction authorization for a repository at the site and for compliance with the National Environmental Policy Act of 1969. The Secretary shall report to the Commission on the tests conducted at a site pursuant to this subsection and on the information developed from such tests.

(d) RESTRICTIONS.—(1) In conducting site characterization activities or tests pursuant to subsection (c)—

(A) the Secretary may not use radioactive materials at a site unless the Commission concurs that such use is necessary to provide data for the submission of an application for a construction authorization for a repository at the site;

(B) if radioactive materials are placed in a site, the Secretary shall place the smallest quantity necessary to determine the suitability of the site for a repository, but in no event more than the curie equivalent of ten metric tons of spent nuclear fuel; and

(C) any radioactive material used or placed on a site shall be fully retrievable.

(2) If characterization activities are terminated at a site for any reason, the Secretary shall remove any nuclear waste, spent nuclear fuel, or other radioactive materials at or in the site as promptly as practicable.

SITE APPROVAL AND CONSTRUCTION AUTHORIZATIONS

SEC. 114. (a) HEARINGS AND PRESIDENTIAL RECOMMENDATION.—(1) The Secretary shall hold public hearings, in the vicinity of each site under consideration for recommendation to the President under this paragraph as a site for the development of a repository, for the purposes of informing the residents of the area in which the site is located of such consideration and receiving their comments regarding the possible site designation. After completion of site characterization activities under section 113 and after holding such hearings in the vicinity of a site, the Secretary may submit to the President a recommendation that the President approve the site for the development of a repository. Together with any recommendation of a site under this paragraph, the Secretary shall submit to the President a report containing the following:

(A) A description of the proposed repository, including engineering plans for the facility.

(B) A description of the waste form or packaging proposed for use at the repository.

(C) A discussion of data, obtained in site characterization activities, relating to the safety of the repository site.

(D) A final environmental impact statement for the site and the design of the repository as required under the National Environmental Policy Act of 1969 together with comments made concerning the environmental impact statement by the Department of the Interior, the Council on Environmental Quality, the Environmental Protection Agency, and the Nuclear Regulatory Commission.

(E) Preliminary comments of the Nuclear Regulatory Commission concerning the extent to which the at-depth site characterization analysis and the waste form proposal for the site seem to be sufficient for inclusion in any application to be submitted by the Department of Energy for licensing of the site as a repository.

(F) The views of any State review board, or governing body of any Indian tribe, which is affected by such site, as determined by the Secretary, together with the Secretary's response to such views.

(G) Such other information as the Secretary considers appropriate to provide a statement of the basis for the recommendation of the site for licensing as a repository.

(2) Not later than March 30, 1987, the President shall submit to the Congress a recommendation of a site which the President considers qualified for application for license as a repository. The President shall submit with such recommendation a copy of the report for such site prepared by the Secretary under paragraph (1). After submission of the initial recommendation, the President may submit to the Congress recommendations for other sites which the President also

considers suitable for such purpose, together with such reports.

(3) If the approval of a site recommendation for the initial repository proposed as required under paragraph (2) does not take effect as a result of a disapproval by the Congress under section 115, the President shall submit to the Congress, within one year after the disapproval of the recommendation, a recommendation of another site for an initial repository. The President may not recommend the approval of any site under this paragraph unless the Secretary has recommended to the President under paragraph (1) approval of such site and has submitted to the President a report for the site as required under such paragraph.

(b) SUBMISSION OF APPLICATION.—If the President recommends to the Congress a site for a repository under subsection (a) and the site designation is permitted to take effect under section 115 (pertaining to congressional disapproval), the Secretary shall submit to the Commission a license application for the construction of a repository at the site within ninety days after the date on which the recommendation of the site designation is effective under such section and shall provide the State review board of the State in which the site is located, or the governing body of any Indian tribe on whose reservation the site is located, a copy of the application.

(c) STATUS REPORT FOR CONSTRUCTION PERMIT AUTHORIZATION.—No later than two years after the date on which an application for a license application is submitted under subsection (b), the Commission shall submit a report to the Congress describing the proceedings undertaken through such date with regard to the authorization application submitted, including a description of—

(1) major unresolved safety issues, and the Secretary's explanation of design and operation plans for resolving such issues;

(2) matters of contention regarding the application;

(3) any Commission actions regarding the granting or denial of the authorization.

(d) COMMISSION ACTION.—The Commission shall consider a license application for the construction of a repository in accordance with the laws applicable to such applications, except that the Commission shall issue a final decision approving or disapproving the first such application not later than—

(1) January 1, 1990, or

(2) the expiration of four years after the date of the submission of the application,

whichever occurs later. The Commission shall notify the Secretary of the Interior of any application approved under this paragraph.

REVIEW OF REPOSITORY SITE SELECTION

SEC. 115. (a) IN GENERAL.—The designation of a site for a repository (other than sites for which the President has submitted written notification to the Congress under subsection (c)(2)) shall be effective at the end of the thirty-day period beginning on the date that the President recommends the site to the Congress under section 114 unless a State review board has submitted to the Congress a petition for disapproval under section 116 or the governing body of an Indian tribe has submitted such a petition under section 117. If any such petition has been submitted, the approval of the designation shall not be effective except as provided under subsection (b).

(b) CONGRESSIONAL REVIEW OF SITES.—(1) Except with respect to repository site designations for which the President has submitted notification to the Congress under subsection (c)(2), if a petition under section 116 or 117 for disapproval of a site designation has been submitted to the Congress after a recommendation for approval of the site has been made by the President under section 114, then the designation of such site for a repository shall be effective at the end of the first period of ninety calendar days of continuous session of the Congress after the date of transmittal of the recommendation of approval by the President to the Congress, unless, during such period, either House of the Congress passes a resolution the matter after the resolving clause of which reads as follows: "The   approves the petition submitted by   regarding the disapproval of the site at   for a repository for the disposal of high-level radioactive waste, transuranic waste, and spent nuclear fuel."; (the first blank space being filled with the designation of the appropriate House of the Congress; the second blank space being filled with the name of the State review board or Indian tribe governing body the petition of which is approved; the third blank space being filled with the geographic location of the proposed repository site). For purposes of paragraphs (3) through (7) of this subsection, the term "resolution" means a resolution described by this paragraph.

(2) Paragraphs (3) through (7) of this subsection are enacted by Congress—

(A) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by paragraph (1) of this subsection; and the provisions of such paragraphs supersede other rules only to the extent that they are inconsistent therewith; and

(B) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of the House.

(3) A resolution once introduced with respect to any site designation shall immediately be referred to a committee (and all resolutions with respect to the same site designation shall be referred to the same committee) by the President of the Senate or the Speaker of the House of Representatives, as the case may be.

(4)(A) If the committee to which a resolution with respect to a site designation has been referred has not reported it at the end of twenty calendar days after its referral, it shall be in order to move either to discharge the committee from further consideration of such resolution or to discharge the committee from further consideration of any other resolution with respect to such site designation which has been referred to the committee.

(B) A motion of discharge may be made only by an individual favoring the resolution, shall be highly privileged (except that it may not be made after the committee has reported a resolution with respect to the same site designation) and debate thereon shall be limited to not more than one hour, to be divided equally between those favoring and those opposing the resolution. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(C) If the motion to discharge is agreed to or disagreed to, the motion may not be renewed, nor may another motion to discharge the committee be made with respect to any other resolution with respect to the same site designation.

(5)(A) When the committee has reported, or has been discharged from further consideration of, a resolution it shall be at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) to move to proceed to the consideration of the resolution. The motion shall be highly privileged and shall not be debatable. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(B) Debate on the resolution referred to in subparagraph (A) of this paragraph shall be limited to not more than five hours, which shall be divided equally between those favoring and those opposing such resolution. A motion further to limit debate shall not be debatable. An amendment to, or motion to recommit, the resolution shall not be in order, and it shall not be in order to move to reconsider the vote by which such resolution was agreed to or disagreed to.

(6)(A) Motions to postpone, made with respect to the discharge from committee, or the consideration of, a resolution, and motions to proceed to the consideration of other business, shall be decided without debate.

(B) Appeals from the decision of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to a resolution shall be decided without debate.

(7) Notwithstanding any of the provisions of this subsection, if a House has approved a resolution with respect to a site designation, then it shall not be in order to consider in that House any other resolution with respect to the same such site designation.

(c) COMPUTATION OF DAYS.—For purposes of this section—

(1) continuity of session of Congress is broken only by an adjournment sine die; and

(2) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of the ninety-day period or sixty-day period, as the case may be.

STATE REVIEW BOARDS

SEC. 116. (a) DEFINITION.—(1) For purposes of this subtitle, a State review board of a State is an entity of the State which is—

(A) created under State law with the authority described in paragraph (2) and the composition prescribed by paragraph (3); and

(B) determined by the Secretary to be established in accordance with this section.

(2) A State review board shall be authorized under State law to—

(A) review activities under this subtitle and activities of the Commission with respect to any site in the State for a repository to determine the potential economic, environmental, social, and public health and safety impacts of the repository on the State and its residents;

(B) be a representative of the State in any proceeding before the Commission respecting a site for a repository in the State; and

(C) submit, in accordance with subsection (b), to the Congress petitions requesting the Congress to disapprove, in accordance with section 115, construction of repositories in the State.

(3) The State review board shall consist of members representing the interests of the general public in the State, including members appointed to represent the interests of any Indian tribes and local governments which would be affected by the repository.

(4) The State review board shall hold meetings open for public participation not less than once every four months, at which meetings the board shall receive and to the extent practicable place on its agenda matters submitted by board members.

(5) The authority of State review boards shall not be applicable with respect to sites located on Indian reservations. Any references contained in this section to sites located within a State shall not be deemed to include sites located on Indian reservations within the State.

(b) Participation in Repository Licensing Decisions.—Upon the submission by the President to the Congress of the recommendation of a site for a repository, the State review board of the State in which the site is located may, by majority vote of the membership of the board, submit a petition to the Congress requesting that the Congress disapprove the site designation. A State review board may submit such a petition to the Congress not later than the thirtieth day after the date that the President recommends the site to the Congress under section 114. A petition shall be considered to be submitted to the Congress on the date of the transmittal of the petition to the Speaker of the House and the President pro tempore of the Senate. The petition shall be accompanied by a statement of reasons explaining why the petition should be granted.

(c) FINANCIAL ASSISTANCE.—(1) Subject to paragraph (2), and to the availability of funds to carry out this paragraph, the Secretary shall make grants to the State review boards of each State in which a site for a repository has been approved under section 112(c). Grants under this paragraph shall be made under such terms and conditions as the Secretary may prescribe, and the amount of funds provided a board under this paragraph in any fiscal year may not exceed 75 per centum of the costs of the operation of the board in such year as determined by the Secretary. Salaries and travel expenses which would ordinarily be incurred by any State or local government shall not be considered part of the budget of the board and shall not be eligible for payment under this section.

(2) A State review board may not receive any grant after the expiration of one year after—

(A) the date on which the Secretary notifies the State review board that, on the basis of site characterization activities, the Secretary has determined that a site in the State does not meet the requirements applicable to repositories,

(B) the date on which the site is disapproved by the Congress under section 115, or

(C) the date on which the Commission disapproves an application for a construction authorization for a repository at a site in the State,

whichever occurs first unless there is another site in the State approved under section 112(c) with respect to which the actions described in subparagraphs (A), (B), and (C) have not been taken.

(3) At the end of the one-year period beginning on the effective date of any operating license for a repository in a State, no Federal funds shall be made available under this subsection for the State review board of the State in which the repository is located, except for—

(A) such funds as may be necessary to support board activities related to any other respository located in, or proposed to be located in, such State, and for which an operating license has not been in effect for more than one year; and

(B) such funds as may be necessary to support Board activities pursuant to agreements or contracts for assistance entered into under subsection (c) by the board with the Federal Government before the end of such one-year period.

(d) Consultation.—(1) The Secretary, the Nuclear Regulatory Commission, and other agencies involved in the construction or operation of a waste repository in a State shall provide to the State review board of such State, and to the governing body of any Indian tribe on or adjacent to whose reservation the repository site is located, timely and complete information regarding determinations or plans made with respect to the siting, development, design, construction, operation, or regulation of the repository.

(2) In performing any study of an area within a State for the purpose of determining the suitability of the area for a repository and in subsequently developing and loading any repository within a State, the Secretary shall consult and cooperate with the State review board of the State and the governing body of any affected Indian tribe in an effort to resolve the concerns of the State and any affected Indian tribe regarding the public health and safety, environmental, and economic impacts of any such repository. In carrying out his duties under this subtitle, the Secretary shall take such concerns into account to maximum extent feasible.

(3) As soon as possible after notifying a State of his decision to study an area within such State as a possible repository site, the Secretary shall seek to enter into a writ-

ten agreement with the State review board of the State and, where appropriate, a separate agreement with the governing body of any affected Indian tribe, setting forth the procedures under which the requirements of paragraphs (1) and (2) shall be carried out. The written agreement shall specify procedures—

(A) by which the State or the governing body of the Indian tribe (as the case may be) may study, determine, comment on, and make recommendations with regard to the possible health and safety, environmental, and economic impacts of any such respository;

(B) by which the Secretary may consider and respond to comments and recommendations made by the State review board or the governing body of the Indian tribe (as the case may be), including the period in which the Secretary may so respond;

(C) by which the Secretary and either the State review board or the governing body of the affected Indian tribe (as the case may be) may review or modify the agreement periodically; and

(D) for public notification of the procedures specified under subparagraphs (A) through (C).

PARTICIPATION OF INDIAN TRIBES

SEC. 117. (a) AUTHORITIES OF TRIBAL GOVERNING BODIES.—The governing body of any Indian tribe on whose reservation is located a site approved for site characterization under section 112(c) shall have the authorities described under sections 116(a)(2)(A) and 116(a)(2)(C).

(b) ASSISTANCE TO TRIBES.—(1) Subject to the availability of funds to carry out this section, the Secretary shall provide to the governing body of each Indian tribe referred to in subsection (a) such funds as may be necessary to provide technical assistance to the tribe, and to assist the tribe in conducting the activities described under sections 116(a)(2)(A) and 116(a)(2)(C) and other similar activities related to the repository.

(2) No funds may be made available to the governing body of an Indian tribe under this section with respect to a site located on the reservation of such tribe after the expiration of one year after—

(A) the date the Secretary notifies such governing body that, on the basis of site characterization activities, the Secretary has determined that the site does not meet the requirements applicable to repositories,

(B) the date on which the site is disapproved by the Congress under section 115, or

(C) the date on which the Commission disapproves an application for a construction authorization for a repository at the site.

whichever occurs first unless there is another site located on the reservation of such tribe and approved under section 112(c) with respect to which the actions described in subparagraphs (A), (B), and (C) have not been taken.

(3) At the end of the one-year period beginning on the effective date of any operating license for a repository located on a reservation, no Federal funds shall be made available under this subsection to the governing body of the Indian tribe on whose reservation the repository is located, except for—

(A) such funds as may be necessary to support activities related to any other repository located in, or proposed to be located in, such reservation, and for which an operating license has not been in effect for more than one year; and

(B) such funds as may be necessary to support activities pursuant to agreements or contracts for assistance entered into by the governing body of the Indian tribe with the Federal Government before the end of such one-year period.

JUDICIAL REVIEW OF AGENCY ACTIONS

SEC. 118. (a) Except for review in the Supreme Court of the United States, the United States Court of Appeals for the District of Columbia circuit shall have original and exclusive jurisdiction over—

(1) any civil action for review of any final decision or action of the Secretary, the President, or the Commission under this subtitle;

(2) any civil action alleging the failure of the Secretary, the President, or the Commission to make any decision, or take any action, required under this subtitle; or

(3) any civil action challenging the constitutionality of any decision made, or action taken, under any provision of this subtitle.

(b) The United States Court of Appeals for the District of Columbia circuit shall exercise its powers in such manner as to expedite the determination of cases over which it has jurisdiction under this section.

(c) A civil action for judicial review described under subsection (a) may be brought not later than the one hundred and eightieth day after the date of the decision or action or failure to act, as the case may be, except that if a party shows that he did not know of the decision or action complained of (or of the failure to act), and that a reasonable person acting under the circumstances would not have known, such person may bring the civil action not later than the one hundred and eightieth day after the date such person acquired actual or constructive knowledge thereof.

EXPEDITED AUTHORIZATIONS

SEC. 119. (a) ISSUANCE OF AUTHORIZATIONS.—(1) Subject to paragraph (2), to the extent that the taking of any action related to the characterization of a site or the construction or initial operation of a repository under this subtitle requires a certificate, right-of-way, permit, lease, or other authorization from a Federal officer or agency, such officer or agency shall issue or grant any such authorization at the earliest practicable date, to the extent permitted by the applicable provisions of law administered by such officer or agency. All actions of a Federal officer or agency with respect to consideration of applications or requests for the issuance or grant of any such authorization shall be expedited, and any such application or request shall take precedence over any similar applications or requests not related to such repositories.

(2) The requirements of paragraph (1) shall not be applicable in the case of any action related to any permit or other authorization issued or granted by, or requested from, the Nuclear Regulatory Commission.

(b) TERMS OF AUTHORIZATIONS.—(1) Any authorization issued or granted under subsection (a) shall include such terms and conditions as may be required by law, and may include terms and conditions permitted by law.

(2) Except as provided in the second sentence of this subsection, nothing contained in this section shall be construed to impair the authority of any Federal officer or agency to add to, amend, or abrogate any term or condition included in any authorization issued or granted pursuant to subsection (a) if such action is otherwise permitted under applicable laws administered by such officer or agency. In the case of any such action which is permitted but not required by law, the Federal officer or agency shall have no authority to take such action if the terms and conditions to be so added, or as so amended, would have the effect of terminating the characterization, construction, or initial operation of the potential or permanent repository which the authorization affects.

SCHEDULE FOR CERTAIN STANDARDS AND CRITERIA

SEC. 120. (a) ENVIRONMENTAL PROTECTION AGENCY STANDARDS.—Not later than November 1, 1981, the Administrator of the Environmental Protection Agency, pursuant to authority under other provisions of law, shall, by rule, promulgate generally applicable standards for protection of the general environment from radioactive material in repositories.

(b) CRITERIA.—Not later than November 1, 1981, the Commission, pursuant to authority under other provisions of law, shall, by rule, promulgate criteria which it will apply in reviewing under the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974, applications for construction authorizations for the construction of repositories.

DISPOSAL OF SPENT NUCLEAR FUEL

SEC. 121. Notwithstanding any other provision of this subtitle, any repository constructed on a site approved under this part shall be so designed and constructed that the spent nuclear fuel may be retrieved, during an appropriate period of operation of the facility, for any reasons pertaining to the public safety or for the purpose of permitting the recovery of the economically valuable contents of such fuel.

AUTHORIZATION OF APPROPRIATIONS; CONTRACT AUTHORITY

SEC. 122. (a) AUTHORIZATION.—There are authorized to be appropriated to the Secretary to carry out this subtitle $5,000,000 for the fiscal year ending September 30, 1982.

(b) CONTRACTS.—The authority of the Secretary to enter into contracts under this subtitle shall be effective for any fiscal year only to such extent or in such amounts as are provided in advance by appropriation Acts.

ACCOUNTING OF EXPENDITURES

SEC. 123. (a) RECORD OF EXPENDITURES.—The Secretary shall maintain adequate records of all expenditures made under this subtitle which, together with expenditures made by the United States under other laws in connection with the management and disposal of nuclear wastes and spent nuclear fuel, shall provide the basis for any fees to be assessed as described under subsection (b).

(b) FEE COLLECTION.—Not later than the date the Secretary submits to the Commission under section 114 a license application for the construction of an initial repository, the Secretary shall submit to the Congress a report proposing fees to be collected to offset all construction, operation, administrative, and other costs incurred by the Secretary in providing for the management and disposal of nuclear wastes and spent nuclear fuel. The fees specified in the report would be collected from the persons or entities who hold title to any nuclear waste or spent nuclear fuel which is subject to interim storage or disposal by the Secretary.

TERMINATION OF PART

SEC. 124. (a) SECTIONS 118 AND 119.—Sections 118 and 119 shall cease to have effect at such time as the Secretary commences licensed commercial operation of at least one repository.

(b) REMAINDER OF PART.—The provisions of this part, other than sections 118, 119, 121, and 123, shall cease to have effect after December 31, 1999.

Subtitle B—Low-Level Radioactive Waste

AMENDMENTS TO THE ATOMIC ENERGY ACT OF 1954

SEC. 131. (a) AMENDMENT TO SECTION 11.—Section 11 of the Atomic Energy Act of 1954 is amended by adding the following new subsection at the end thereof:

"dd. The term 'low-level radioactive waste' means waste containing source, byproduct, or special nuclear material which the Commission determines, by regulation, requires disposal in accordance with sections 83, 84, and 161 x. of this Act, except that such term does not include byproduct material as defined in section 11 e. (2).".

(b) AMENDMENTS TO SECTION 274 RELATING PRIMARILY TO LOW-LEVEL WASTE.—(1)(A) Paragraph (1) of section 274 o. of the Atomic Energy Act of 1954 is amended by inserting the following before the comma at the end thereof: "in the case of byproduct material as defined in section 11 e. (2) and in the case of low-level radioactive waste".

(B) Paragraph (2) of such subsection o. is amended by—

(i) striking out "such material which" and inserting in lieu thereof "material, waste, activities, and facilities regulated by the State pursuant to the agreement, which standards"; and

(ii) by inserting ", where applicable," after "including".

(C) Paragraph (3) of such subsection o. is amended by—

(i) inserting the following after "(3)": "for the licensing and regulation of byproduct material as defined in section 11 e. (2) and low-level radioactive waste,";

(ii) striking out in subparagraph (A) "procedures under State law which include" and substituting "under State law"; and

(iii) in subparagraph (C)(iv) thereof by inserting "site closure," before "decommissioning".

(D) Subparagraph (D) of paragraph (3) of such subsection o. is amended by striking out "with respect to such material" and substituting "with respect to the material and waste to which this paragraph applies".

(E) So much of paragraph (3) of such subsection o. as follows subparagraph (D) thereof is amended by—

(A) striking out "of such material" the first place it appears and substituting "with respect to byproduct material as defined in section 11 e. (2) or low-level radioactive waste, or with respect to any site used for the disposal thereof"; and

(B) striking out "of such material" in the second place it appears and substituting "of such material, waste, or site".

(2) The penultimate sentence of section 274 c. of such Act is amended by inserting the following before the period

at the end thereof: "and prior to termination of a license for disposal of low-level radioactive waste".

(3) Section 274 i. of such Act is amended by adding the following at the end thereof: "The Commission may provide technical assistance to States for purposes of aiding the States in resolving problems relating to the disposal of radioactive wastes whether or not such wastes are composed of source, byproduct, or special nuclear material.".

(c) AMENDMENTS TO SECTION 83.—(1) Section 83 of the Atomic Energy Act of 1954 is amended by striking out the heading thereof and substituting "OWNERSHIP AND CUSTODY OF CERTAIN BYPRODUCT MATERIAL, LOW-LEVEL RADIOACTIVE WASTE, AND DISPOSAL SITES.—".

(2) The item relating to section 83 in the table of contents for such Act is amended to read as follows:

"Sec. 83. Ownership and custody of certain byproduct material, low-level radioactive waste, and disposal sites.".

(3) Section 83 a. of such Act is amended by inserting before the words "shall contain" the following: "and any license issued or renewed after the date of the enactment of the Atomic Energy Act Amendments of 1981 for the disposal of low-level radioactive waste,".

(4) Section 83 a. (1) of such Act is amended by—

(A) inserting "site closure," before "decommissioning"; and

(B) inserting the following at the end thereof: "for sites at which such low-level radioactive waste is disposed of, and".

(5) Section 83 a. (2)(B) of such Act is amended by striking out "in the State" and substituting "the State".

(6) The last sentence of section 83 a. of such Act is amended to read as follows: "Any license which is in effect on the effective date of this section (in the case of byproduct material as defined in section 11 e. (2)) or on the date of the enactment of the Atomic Energy Act Amendments of 1981 (in the case of a license for the disposal of low-level radioactive waste) and which is subsequently terminated without renewal shall comply with paragraphs (1) and (2) upon termination, except that in the case of any such license, the reference in paragraph (2) to the exercise by the State of an option under subsection b. (1) shall be treated as a reference to the exercise by the State of the option under subsection b. (4)".

(7) Section 83(b)(1)(A) is amended by—

(A) striking out "(b)(1)(A)" and substituting "b. (1)(A)"; and

(B) inserting in the first sentence after "effective date of this section" the following: "(in the case of byproduct material, as defined in section 11 e. (2)) or after the date of the enactment of the Atomic Energy

Act Amendments of 1981 (in the case of a license for the disposal of low-level radioactive waste)".

(8) Section 83(b)(1)(B) of such Act is amended by—

(A) striking out "of the land" and substituting "of land used for the disposal of byproduct material as defined in section 11 e. (2) which land is";

(B) striking out "under subparagraph (A) or this paragraph" and substituting "under subparagraph (A) or under paragraph (4)"; and

(C) inserting the following at the end thereof:

"(C) If the Commission determines by order that use of the surface of land used for the disposal of low-level radioactive waste transferred to the United States or to a State under subparagraph (A) would not endanger the public health, safety, welfare, or environment, the Commission, pursuant to such regulations as it may prescribe, may permit the use of the surface of the land in a manner consistent with the provisions of this section. If the Commission permits such use of such land, it shall provide the person who transferred the land with the right of first refusal with respect to such use of the land.".

(9) Section 83(b)(2) of such Act is amended by—

(A) striking out "title to such byproduct material and such land" and substituting "title to byproduct material, low-level waste, or land"; and

(B) striking out "custody of such byproduct material and land transferred as provided in this subsection" and substituting "custody of the byproduct material, waste, and land so transferred".

(10) Section 83(b)(3) of such Act is amended to read as follows:

"(3) If transfer to a State of title to any byproduct material, low-level waste, or land is required in accordance with this section, the State shall, following the Commission's determination of compliance under subsection c., assume title and custody to the material, waste, or land concerned. The State shall maintain the material, waste, and land so transferred in such manner as will protect the public health, safety, and the environment.".

(11) Section 83(b)(4) of such Act is amended by—

(A) striking out "such license under section 62" and substituting "license under section 62 or section 81 with respect to byproduct material as defined in section 11 e. (2)";

(B) inserting after "effective date of this section," the following: "and in the case of any license for the disposal of low-level radioactive waste which was in effect on the date of the enactment of the Atomic Energy Act Amendments of 1981"; and

(C) inserting "or material which is low-level radioactive waste" immediately after the words "such byproduct material".

(12) Section 83(b)(5) of such Act is amended by striking out "date of the enactment of this Act" and substituting "date of the enactment of the Uranium Mill Tailings Control Act of 1978".

(13) Section 83(b)(6) is amended by striking out "this subsection" and substituting "this section".

(14) Section 83(b)(7) of such Act is amended by—

(A) striking out the first sentence thereof and substituting "Material and land transferred to the United States or a State in accordance with this subsection shall be transferred without cost to the United States or a State (other than administrative and legal costs incurred in carrying out such transfer)." and substituting "Material, low-level radioactive waste, and land transferred to the United States or to a State in accordance with this subsection and subsection a. shall be transferred without cost to the United States or to the State (other than administrative and legal costs incurred in carrying out such transfer)."; and

(B) striking out "Subject to" and substituting "In the case of byproduct material as defined in section 11

e. (2) and land used for the disposal thereof, subject to".

(14) The following provisions of section 83 of such Act are each amended by inserting "or any low-level radioactive waste" immediately after the words "as defined in section 11 e. (2)" each place they appear in subsection a. (2), subsection b. (1)(A), and subsection b. (6) and (8).

(15) Section 83 c. of such Act is amended to read as follows:

"c. No license to which this section applies may be terminated until the Commission has made a determination that the licensee has complied with the requirements of subsection a. and any other applicable decommissioning and site closure requirements.".

(d) AMENDMENTS TO SECTION 84.—(1) Section 84 of such Act is amended in the heading thereof by inserting "AND LOW-LEVEL RADIOACTIVE WASTE" after "MATERIAL".

(2) The item relating to section 84 in the table of contents for such Act is amended by inserting "and Low-Level Radioactive Waste" after "Material".

(3) Section 84 a. of such Act is amended by redesignating subsection b. as c. and by inserting the following new subsection after subsection a.:

"b. (1) The Commission shall insure that the disposal of any low-level radioactive waste is carried out in such manner as the Commission deems appropriate to protect the public health and safety and the environment from radiological and nonradiological hazards associated with the possession and disposal of such waste.

"(2) The Commission may provide for the disposal of low-level radioactive waste at sites which are located within or adjacent to sites at which hazardous waste is disposed of pursuant to the Solid Waste Disposal Act, or at sites classified as sanitary landfills under criteria promulgated under section 4004 of that Act, where the Commission determines, in consultation and coordination with the Administrator of the Environmental Protection Agency, that the disposal of low-level radioactive waste at such sites is feasible and will not unduly endanger public health and safety or the environment.

"(3) The Commission may, in consultation with the Administrator of the Environmental Protection Agency, promulgate rules and regulations designating concentrations or levels of activity for low-level radioactive waste which may be disposed of in hazardous waste disposal sites for which a permit has been issued under subtitle C of the Solid Waste Disposal Act or in sites classified as sanitary landfills under criteria promulgated pursuant to section 4004 of the Solid Waste Disposal Act.".

(4) Section 84 c. of such Act, as redesignated by paragraph (3) of this Act, is amended by—

(A) striking out "such byproduct material" and substituting "material or waste to which this section applies";

(B) striking out "other than the United States or any officer or employee of the United States or a State" and substituting "(other than the United States or a State or any officer or employee of the United States or a State)"; and

(C) striking out "as violations" and substituting "as provided in the case of violations".

(e) AMENDMENTS TO SECTION 161 x.—Section 161 x. of the Atomic Energy Act of 1954 is amended—

(1) in paragraph (1) thereof by—

(A) inserting "or for disposal of low-level radioactive waste," after "as defined in section 11 e. (2),";

(B) inserting "site closure," before "decommissioning"; and

(C) by inserting "or used in conjunction with the disposal of such low-level radioactive waste," after "as so defined";

(2) by striking out "and" at the end of paragraph (2)(A), by striking out the period at the end of paragraph (2)(B) and substituting "; and", and by adding the following new subparagraph at the end of paragraph (2):

"(C) in the case of each license for the disposal of low-level radioactive waste (whether in effect on the date of the enactment of this subparagraph or issued or renewed thereafter), if the Commission determines that any long-term maintenance or monitoring, or both, is necessary, the licensee, before termination of the license, will make available such bonding, surety, or other financial arrangements as may be necessary to assure the necessary long-term maintenance or monitoring, or both."; and

(3) in so much of such subsection x. as follows paragraph (2) thereof, by—

(A) inserting "site closure" before "decommissioning"; and

(B) striking out "to carry out subparagraphs (1) and (2)" and substituting "to carry out paragraphs (1) and (2)".

TITLE II—MODIFICATION OF PRICE-ANDERSON PROVISIONS

AMENDMENTS TO PRICE-ANDERSON PROVISIONS

SEC. 201. (a) DEFINITIONS.—Section 11 of the Atomic Energy Act of 1954 is amended—

(1) by striking out subsection j.,

(2) in subsection k., by striking out "and to meet the costs" and all that follows down to the period at the end thereof, and

(3) in subsection q. by striking out ", including any extraordinary nuclear occurrence,".

(b) AMOUNT OF FINANCIAL PROTECTION REQUIRED.—Section 170 b. of the Atomic Energy Act of 1954 is amended—

(1) in the third sentence thereof by striking out "not less than $2,000,000 nor more than $5,000,000" and substituting "not more than $20,000,000"; and

(2) by inserting the following new sentence after the third sentence thereof: "The deferred premiums charged under this subsection shall be payable in equal installments over a period of not less than one year nor more than five years.".

(c) COMMISSION INDEMNITY.—The second sentence of section 170 c. of the Atomic Energy Act of 1954 is amended by—

(1) striking out "$500,000,000" and substituting "$5,000,000,000"; and

(2) striking out "that the financial protection required shall exceed $60,000,000" and substituting "of financial protection required".

(d) FEDERAL CONTRACTORS.—The second sentence of section 170 d. of the Atomic Energy Act of 1954 is amended by—

(1) striking out "$500,000,000" and substituting "$5,000,000,000"; and

(2) striking out "that the financial protection required shall exceed $60,000,000" and substituting "of financial protection required".

(e) LIMITATION ON LIABILITY.—Section 170 e. of the Atomic Energy Act of 1954 is amended to read as follows:

"e. (1) In the case of a single nuclear incident involving a facility which received a construction permit from the Commission before the date of the enactment of the Atomic Energy Act Amendments of 1981, except as provided in paragraph (2), the aggregate liability of a licensee and other persons who may be liable for public liability arising from a nuclear incident, excluding the reasonable costs of investigating and settling claims and defending suits for damage, shall not exceed the sum of—

"(A) the financial protection required; and

"(B) any indemnity provided by the Commission under subsection c., k., or l.

"(2) With respect to any nuclear incident occurring outside of the United States to which an agreement of indemnification entered into under the provisions of subsection 170 d. is applicable, such aggregate liability shall not exceed the amount of $100,000,000 together with the amount of financial protection required of the contractor.

"(3) With respect to any public liability arising from a single nuclear incident involving a facility which receives a construction permit from the Commission on or after the date of the enactment of the Atomic Energy Act Amendments of 1981, no payment shall be authorized by the court from any source other than from the financial protection required until such time as the total amount of such financial protection and indemnity has been used to pay claims for such public liability.".

(f) INDEMNITY FEES.—Section 170 f. of the Atomic Energy Act of 1954 is amended by striking out "$30" and substituting "$1,000", by striking out the colon and all that follows down to the period in the second sentence, and by adding the following at the end of such subsection: "The Commission may, in its discretion, return to the payee any portion of a fee collected under this subsection after a period of ten years from the date on which the fee was paid.".

(g) SURVEY OF DAMAGES.—Section 170 i. of the Atomic Energy Act of 1954 is amended to read as follows:

"i. After any nuclear incident the Commission shall make a survey of the causes and extent of damage which shall forthwith be reported to the appropriate committees of the Congress, to the Congressmen of the affected districts, and to the Senators of the affected States, and, except for information which would cause serious damage to the national defense of the United States, all final findings shall be made available to the public, to the parties involved, and to the courts.".

(h) NONPROFIT EDUCATIONAL INSTITUTIONS.—Section 170 k. (1) of the Atomic Energy Act of 1954 is amended by striking out "$500,000,000" and inserting in lieu therof "$5,000,000,000".

(i) WAIVERS OF DEFENSES.—Section 170 n. of the Atomic Energy Act of 1954 is amended by striking out "extraordinary nuclear occurrence" and substituting "nuclear incident" in each place it appears and by striking out "twenty" and substituting "forty".

(j) PRIORITY OF CLAIMS.—Section 170 o. of the Atomic Energy Act of 1954 is amended by adding the following at the end of paragraph (3) thereof: "The courts shall not entertain or allow claims for property or other damage to be made by the owner or operator of any nuclear reactor, or their agents, or suppliers, until all other claims permitted under this subsection have been determined and compensated in full, and until all costs and expenses of the United States related to the nuclear accident, and all costs of the court and claimants' court costs, have been paid in full.".

(k) COMMISSION REPORT.—Section 170 p. of the Atomic Energy Act of 1954 is amended to read as follows:

"p. The Commission shall submit to the Congress by August 1, 1983, a detailed report concerning the need for continuation or modification of the provisions of this section, taking into account the condition of the nuclear industry, availability of private insurance, and the state of knowledge concerning nuclear safety at that time, among other relevant factors, and shall include recommendations as to the repeal or modification of any of the provisions of this section and recommendations respecting liability issues not addressed by this section, including issues relating to proof of causation of damages associated with nuclear incidents and issues relating to the elements of such damages for which compensation should be provided.".

(l) EFFECTIVE DATE AND SAVINGS CLAUSE.—(1) Not later than six months after the date of the enactment of this Act, the Nuclear Regulatory Commission shall promulgate amended regulations under the Atomic Energy Act of 1954 reflecting the amendments made by this section. The amendments made by this section, and the regulations of the Commission reflecting such amendments, shall take effect on the date one year after the date of the enactment of this Act and shall apply to licenses issued before, on, or after such date.

(2) Until the date one year after the date of the enactment of this Act, the requirements of those provisions of the Atomic Energy Act of 1954 which are amended by this section, and the regulations promulgated thereunder, shall continue in force and effect.

TITLE III—AMENDMENTS RELATING PRIMARILY TO FACILITY SITING AND SAFETY

AUTHORITY OF COMMISSION TO ISSUE NEW PERMITS AND LICENSES

SEC. 301. DETERMINATION OF COMPLIANCE.—Construction permits and operating licenses for nuclear powerplants may be issued under the Atomic Energy Act of 1954 only after a determination of the Nuclear Regulatory Commission, by majority vote of the members present, that the licensee meets all applicable requirements of the Atomic Energy Act of 1954. Notwithstanding section 203 of the Energy Reorganization Act of 1974, such determinations may not be delegated by the Commission to the Director of Nuclear Reactor Regulation or to any other officer or employee of the Commission.

EMERGENCY PLANNING

SEC. 302. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.—Chapter 19 of the Atomic Energy Act of 1954 is amended by inserting the following new section after section 275:

"SEC. 276. AUTHORITY AND RESPONSIBILITY OF FEMA AND NRC RELATING TO RADIOLOGICAL EMERGENCY PLANNING AND PREPAREDNESS.—

"a. The Federal Emergency Management Agency (hereinafter in this section referred to as FEMA) shall have the primary responsibility to carry out functions under this Act relating to State and local radiological emergency response planning and preparedness in connection with facilities which are required to be licensed under this Act and which the FEMA determines to have the potential for significant accidental offsite radiological releases. Such functions shall be carried out in consultation with the Commission in accordance with interagency agreements entered into by the two agencies. Such interagency agreements shall facilitate coordination between the two agencies and avoid duplication of effort to the maximum extent practicable.

"b. (1) The FEMA shall, in connection with the carrying out of its functions under subsection a.—

"(A) promulgate regulations containing criteria for State and local radiological emergency response plans to the extent that such plans relate to offsite emergency response,

"(B) evaluate the adequacy of such plans, and

"(C) provide emergency preparedness training to State and local officials.

The FEMA shall consult with the Commission in the development of such regulations and in the evaluation of the adequacy of such plans. The FEMA shall permit the Commission an adequate opportunity to review and comment on the regulations referred to in subparagraph (A) before final promulgation thereof and to review and comment on the findings of the FEMA before making any final determination respecting the adequacy of such plans.

"(2) Nothing in this section shall impair the authority of the Commission to make any assessment or determination with respect to the emergency preparedness of any licensee or to make any final determination as to the general state of emergency preparedness with respect to any facility or material. Before making any such assessment or determination and before adopting any rule, regulation, or policy affecting emergency preparedness, the Commission shall provide an adequate opportunity for review and comment by the FEMA. Nothing in this section applies to, or affects, the respective functions and authorities of the FEMA or the Commission relating to any material or transportation which is required to be licensed under this Act, except to the extent that such material or transportation is within a facility required to be licensed under this Act.

"(3) The regulations promulgated by the FEMA under paragraph (1)(A) shall—

"(A) provide for the periodic review of the criteria set forth in the regulations, and

"(B) require exercises and tests of the emergency preparedness of the State and local authorities concerned and provide for coordination between these exercises and tests with related exercises and tests required by the Commission to be conducted by the licensee.

"c. The FEMA is authorized and directed to develop and carry out, with the assistance of the Commission, public information programs relating to radiological emergency response. Such programs shall be carried out pursuant to an interagency agreement between the FEMA and the Commission which shall set forth the relative functions of the two agencies concerning public information. The programs shall provide for an appropriate public distribution, at least annually, of information relating to actions which may be required to be taken by individuals who may be seriously or substantially affected by any radiological emergency to which the section applies.

"d. No license may be issued under section 103 for the operation of any utilization or production facility unless—

"(1) the licensee has in effect a radiological emergency response plan concerning the actions to be taken by the licensee in the event of a radiological emergency and the plan has been determined by the Commission, in cooperation with the FEMA (pursuant to an interagency agreement between the two agencies), to be adequate to protect the public health and safety,

"(2) appropriate State and local emergency plans are in effect in each State and locality which may be seriously or substantially affected by a radiological emergency associated with such facility and such plans have been determined by the FEMA, in cooperation with the Commission (pursuant to an interagency agreement between the two agencies), to be adequate to protect the public health and safety in the event of such an emergency, and

"(3) the Commission has determined, in cooperation with the FEMA (pursuant to an interagency agreement between the two agencies), that the general emergency preparedness of the licensee, State and local authorities, and Federal agencies is adequate to protect the public health and safety in the event of a radiological emergency associated with the facility proposed to be licensed.

This subsection shall not apply with respect to any facility for which an operating license was issued under this Act on or before the date of the enactment of this subsection.".

(b) TABLE OF CONTENTS.—The table of contents for chapter 19 of the Atomic Energy Act of 1954 is further amended by inserting after the item relating to section 275 the following new item:

"SEC. 276. Authority and responsibility of FEMA and NRC relating to radiological emergency planning and preparedness.".

(c) REVIEW OF PLANS FOR CURRENTLY OPERATING FACILITIES.—Not later than one year after the date of the enactment of this Act, the Federal Emergency Management Agency shall complete a review of the State and local radiological emergency response plans of States and localities which may be seriously or significantly affected by radiological emergencies at facilities for which operating licenses under the Atomic Energy Act of 1954 were issued before the date of the enactment of this Act. Before the expiration of such one-year period, the Agency shall submit a report to the Congress containing an assessment and evaluation of such plans. In developing the report, the Agency shall consult with the Nuclear Regulatory Commission and permit the Commission to review the findings and conclusions of the Agency. The report shall contain any comments of the Commission which are submitted by the Commission to the Agency prior to submission by the Agency of the report to the Congress.

SAFETY OBJECTIVES

SEC. 303. The Nuclear Regulatory Commission shall prepare and submit to the Congress not later than July 1, 1982, a report which sets forth alternative safety objectives respecting nuclear reactors, nuclear material processing, and the transportation and storage of nuclear materials. Each alternative shall be specific with regard to the priorities assigned to the achievement of health, safety, and economic goals.

FEDERAL REMOTE SITING REQUIREMENTS

SEC. 304. (a) AMENDMENT OF ATOMIC ENERGY ACT OF 1954.—Chapter 16 of the Atomic Energy Act of 1954 is amended by adding the following new section at the end thereof:

"SEC. 193. REMOTE SITING OF CERTAIN UTILIZATION FACILITIES.—

"a. No limited work authorization may be issued for a utilization facility to which this section applies, and no construction permit under section 185 of this Act may be issued for such a facility, unless the facility is located in conformity with facility siting regulations promulgated by the Commission under this section. This section applies only to utilization facilities which are designed for the commercial production of electric energy and, except for purposes of subsection c., for which construction permits are issued after promulgation of such regulations. The Commission shall promulgate regulations under this section, after notice and opportunity for hearing in accordance with section 553 of title 5 of the United States Code, as promptly as practicable after the date of the enactment of this section but not later than two years after such date of enactment. The regulations shall take effect upon promulgation.

"b. The regulations promulgated pursuant to this section shall provide that no construction permit may be issued for a utilization facility to which this section applies after the date of such promulgation unless the facility complies with the requirements set forth in such regulations, except that regulations promulgated under this section shall not apply to any facility for which an application for a construction permit was filed on or before October 1, 1979.

"c. The regulations promulgated pursuant to this section shall specify demographic criteria for facility siting, including maximum population density and population distribution for zones surrounding the facility without regard to any design, engineering, or other differences among such facilities.

"d. The regulations promulgated pursuant to this section shall take into account the feasibility of all actions outside the facility which may be necessary to protect public health and safety in the event of any accidental release of radioactive material from the facility which may endanger public health or safety. For purposes of this subsection, the term 'accidental release' includes, but is not limited to, each potential accidental release of radioactive material which is required by the Commission to be taken into account for purposes of facility design.

"e. The Commission shall provide information and recommendations to State and local land use planning authorities having jurisdiction over the zones established under the regulations promulgated pursuant to this section and over areas beyond the zones which may be affected by a radiological emergency. The information and recommendations provided under this subsection shall be designed to assist such authorities in making State and local land use decisions which may affect emergency planning in relation to utilization facilities.

"f. Nothing in this section shall be construed to provide that the Commission shall have any authority to preempt any State requirement relating to land use or respecting the siting of any utilization facility, except that no State or local land use or facility siting requirement relating to the same aspect of facility siting as a requirement established pursuant to this section shall have any force and effect unless such State or local requirement is identical to, or more stringent than, the requirement promulgated pursuant to this section.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 16 is amended by adding the following new item at the end thereof:

"Sec. 193. Remote siting of certain utilization facilities.".

CONSOLIDATION OF CERTAIN LICENSING ISSUES

SEC. 305. (a) ENVIRONMENTAL IMPACT STATEMENT CONSOLIDATION.—Chapter 16 of the Atomic Energy Act of 1954 is amended by adding at the end thereof the following new section:

"SEC. 195. CONSOLIDATION PROCEDURES.—Any environmental impact statement which may bsee required under the National Environmental Policy Act of 1969 in connection with the issuance of an operating license for a facility under this Act shall be based on, and shall incorporate to the maximum extent practicable, any environmental impact statement prepared in connection with the issuance of a construction permit for such facility. The statement shall contain such modifications and supplementary information as may be appropriate. In the preparation of an environmental impact statement in connection with the issuance of such an operating license, there shall not be reassessment of any of the following issues unless warranted by significant new facts or changed circumstances:

"(1) The suitability of the site for the proposed facility.

"(2) Alternative sites.

"(3) The need for the electric energy to be generated by the proposed facility.

"(4) The environmental effect of the nuclear fuel cycle.

"(5) Alternative sources for generating power for the area to be served by the facility.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 16 is amended by adding the following new item at the end thereof:

"Sec. 195. Consolidation procedures.".

(c) SCOPE OF OPERATING LICENSE HEARINGS.—Section 189 of the Atomic Energy Act of 1954 is amended by adding at the end thereof the following: "In any hearing which may be held under this section in connection with the issuance of an operating license for a facility, the Commission shall not permit to be raised and shall not consider any of the matters specified under paragraphs (1) through (5) of section 195 of this Act unless such matters were not addressed in proceedings conducted in connection with the issuance of a construction permit for such facility or significant new facts or changed circumstances warrant a reexamination of such matters.".

PUBLIC PARTICIPATION FUNDING

SEC. 306. (a) AMENDMENT TO ATOMIC ENERGY ACT OF 1954.—Chapter 19 of the Atomic Energy Act of 1954 is further amended by inserting after section 276 (as added by section 302 of this Act) the following new section:

"SEC. 277. PUBLIC PARTICIPATION FUNDING.—

"a. The Commission is authorized and directed to establish a program under this section for funding public participation in Commission rulemaking proceedings.

"b. Upon application, and subject to the provisions and criteria established pursuant to this section and regulations promulgated under this section, the Commission (or an officer designated by the Commission) shall—

"(1) determine whether an applicant is eligible for an award of all or part of the costs (including fees for experts, consultants, and attorneys) of participation in any Commission proceeding subject to this section;

"(2) determine whether such applicant, if eligible, shall receive such award, and, when appropriate, determine the amount of such award; and

"(3) make such awards, if and when appropriate.

"c. A person is eligible to receive an award under this section for participation in a Commission proceeding if he—

"(1) has presented or will present a view or interest which is not adequately presented by another participant in the proceeding, and which contributes substantially to the full and fair consideration of any relevant fact or issue in the proceeding;

"(2) does not have sufficient resources available to participate effectively in the proceeding without an award under this section; and

"(3) has not been found by the Commission to have improperly harassed any participant in the proceeding, acted in bad faith, or sought to participate primarily for the purpose of delaying or obstructing the proceeding.

"d. The Commission may make an advance or interim award under this section upon making a finding of need or a finding that an eligible person's participation is likely to be substantially impaired without such advance or interim award. Other awards under this section shall be made at the conclusion of the proceeding.

"e. The costs of public participation awarded under this section for a particular proceeding shall be based upon the appropriations available and the prevailing rates for the kind and quality of services furnished, except that no expert, consultant, or attorney shall be compensated at a rate in excess of the highest rate of compensation for experts, consultants, or attorneys paid by the Commission.

"f. Whenever applications for payment under this section are submitted by more than one eligible person, the Commission may require consolidation of duplicative presentations, select one or more effective representatives to participate, offer compensation only for certain categories of expenses, or jointly compensate persons representing identical or closely related viewpoints.

"g. Any decision of the Commission made pursuant to this section shall be subject to review in court to the same extent as any other Commission decision, notwithstanding the fact such decision may be interlocutory in nature, except that—

"(1) the courts of the United States shall have no jurisdiction to stay, restrain, or otherwise enjoin the proceedings of the Commission based on an alleged violation of this section, and

"(2) the courts of the United States shall not have jurisdiction to reverse, remand, or otherwise require reconsideration of any other Commission decision on the basis of a Commission decision under this section.

"(h) The Commission shall, within ninety days after the date of enactment of this section, propose regulations to carry out the provisions of this section. Such regulations shall be adopted by the Commission and take effect no later than one hundred and eighty days after the date of enactment of this section.

"i. The authority to make funds available under this section shall terminate upon the expiration of the three-year period beginning on the date of the enactment of this section, except that the Commission may continue to make funds available after the expiration of such period in the case of proceedings which were pending on the expiration of such period where applications for an award under this section was made before such expiration. On or before the expiration of the three-year period, the Commission shall prepare and transmit to the Congress a report on the impact and effectiveness of this section.".

(b) TABLE OF CONTENTS.—The table of contents for such chapter 19 is amended by inserting the following new item after the item relating to section 276:

"Sec. 277. Public participation funding.".

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SEC. 307. (a) AMENDMENT OF SECTION 29.—Section 29 of the Atomic Energy Act of 1954 is amended by inserting ", to the extent practicable," before "shall review".

(b) AMENDMENT OF SECTION 182 b.—Section 182 b. of the Atomic Energy Act of 1954 is amended to read as follows:

"b. The Advisory Committee on Reactor Safeguards may review any application under section 103 or section 104 b. for a site permit, construction permit, or operating license for a facility, any application under section 104 c. for a construction permit, or operating license for a testing facility, any application for an amendment to a site permit, construction permit, or operating license under section 103 or 104 a. through c., or any other application under section 103 or 104. The Commission shall designate and specifically refer to the Committee those applications which it considers to be most appropriate for review by the Committee. To the extent practicable, the Committee shall review those matters so referred to it by the Commission. The Committee shall submit to the Commission a report regarding any application reviewed by the Committee under this subsection, and such report shall become part of the record of the application. Such report shall be made available to the public except to the extent that security classification prevents disclosure.

REPORT ON EXISTING REACTOR COMPLIANCE

SEC. 308. (a) SURVEY.—Using existing documentation the Nuclear Regulatory Commission shall carry out a survey of—

(1) the major requirements implicit in Commission regulations applicable to currently operating utilization facilities required to be licensed under section 103 or

104(b) of the Atomic Energy Act of 1954 which are of particular significance to the protection of public health and safety; and

(2) the extent to which a representative sample of such currently operating utilization facilities is in substantial compliance with such requirements.

Such survey shall be completed, and a report containing the results of the survey shall be submitted to the Congress within one hundred and eighty days after the date of the enactment of this Act. The representative sample referred to in paragraph (2) shall include not less than two, and not more than four, utilization facilities.

(b) STATEMENT OF EFFECT ON COMPREHENSIVE PLAN.—The report submitted under subsection (a) shall include a brief commission statement of the effect, if any, which the survey carried out under this section will have on the implementation of the comprehensive plan for systematic safety evaluation of all currently operating utilization facilities required to be licensed under section 103 or 104(b) of the Atomic Energy Act of 1954.

TEMPORARY ADVISORY PANEL

SEC. 309. (a) ESTABLISHMENT.—The Nuclear Regulatory Commission shall establish an independent Temporary Advisory Panel (hereinafter in this section referred to as the "Advisory Panel") to carry out the purposes of this section.

The Advisory Panel shall consist of members selected by the Commission and shall include representatives of the National Governors' Association, State agencies that regulate rates charged consumers for the use of electric energy, representatives of the nuclear power industry, and representatives from the general public who represent citizen or environmental organizations. Members of the Advisory Panel shall serve without pay. While away from their homes or regular places of business in the performance of services for the Advisory Panel, members of the Panel shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in Government service are allowed expenses under section 5703 of title 5 of the United States Code. The Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the establishment and operation of the Panel.

(b) EVALUATION.—(1) The Advisory Panel established under subsection (a) shall evaluate—

(A) the effectiveness of the nuclear powerplant licensing process in assuring that the requirements of the Atomic Energy Act of 1954 and the National Environmental Policy Act of 1969 are met in the licensing of nuclear powerplants;

(B) the efficiency of the nuclear powerplant licensing process and the potential for delays in the licensing of nuclear powerplants, including the extent to which there exists unnecessary duplication of effort in the licensing of nuclear powerplants;

(C) the extent to which there exists stability and predictability in the licensing process for nuclear powerplants; and

(D) the opportunity for public participation in the nuclear powerplant licensing process.

(2) The evaluation under paragraph (1) shall include, but shall not be limited to, an examination of—

(A) the manner in which need-for-power determinations are made concerning proposed nuclear powerplants by Federal and State agencies under Federal and State law and the extent to which there are duplicating or overlapping requirements and procedures respecting these determinations;

(B) the effect, if any, which the issuance by States of early site permits for nuclear powerplants would have on the nuclear powerplant licensing process, including—

(i) the issues which should be considered in the issuance of such permits,

(ii) the duration of such permits,

(iii) the relationship between State decisions under an early site permit process and Federal requirements under the Atomic Energy Act of 1954, and

(iv) the effect which such permits should have upon subsequent licensing decisions by the Commission; and

(C) the extent to which states may determine the suitability of sites for the location of nuclear powerplants and relationship between such State determinations and the design and operation standards and requirements imposed under the Atomic Energy Act of 1954.

(c) REPORT.—The Advisory Panel established under subsection (a) shall commence its evaluation under subsection (b) within sixty days after enactment of this Act, and within one hundred and eighty days after enactment of this Act the Advisory Panel shall prepare a final report setting forth the results of the evaluation, including an assessment of deficiencies in the present nuclear powerplant licensing process and recommendations for any needed administrative or legislative changes to the process. The report shall be submitted to the Nuclear Regulatory Commission and to the Committee on Interior and Insular Affairs and the Committee on Energy and Commerce of the United States House of Representatives, and to the Committee on Environment and Public

Works of the Senate. The Advisory Panel shall terminate upon submission of such report.

(d) COMMISSION VIEWS.—Within thirty days of the submission of the report of the Advisory Panel under subsection (c), the Commission shall provide to the committees named in subsection (c) the Commission's views on the findings, conclusions, and recommendations set forth in the report of the Advisory Panel.

I

97TH CONGRESS
1ST SESSION

H. R. 5016

To establish a Federal policy with respect to the disposal of high-level radioactive waste from civilian nuclear activities, to provide for the construction, operation, and maintenance of waste disposal facilities, to provide for a program of nuclear waste and spent fuel research and development, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 18, 1981

Mrs. BOUQUARD (for herself, Mr. LUJAN, Mr. FUQUA, Mr. GOLDWATER, Mr. LUNDINE, Mr. WINN, Mr. ROE, Mr. WALKER, Mr. SCHEUER, Mr. CARNEY, Mr. WALGREN, Mr. GREGG, Mr. FLIPPO, Mr. SKEEN, Mr. YOUNG of Missouri, Mr. LOWERY of California, Mr. GORE, Mr. WHITE, Mr. VOLKMER, and Mr. RALPH M. HALL) introduced the following bill; which was referred jointly to the Committees on Energy and Commerce, Interior and Insular Affairs, Science and Technology, and Rules

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A BILL

To establish a Federal policy with respect to the disposal of high-level radioactive waste from civilian nuclear activities, to provide for the construction, operation, and maintenance of waste disposal facilities, to provide for a program of nuclear waste and spent fuel research and development, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "High-Level Radioactive Waste Management and Policy Act".

DEFINITIONS

SEC. 2. For purposes of this Act:

(1) The term "agency" or "Government agency" means any part of the executive branch of the United States, or any commission, branch, department, or bureau of the United States including, but not limited to, the Department of Energy, the Nuclear Regulatory Commission, the Environmental Protection Agency, and the Department of the Interior.

(2) The term "atomic energy defense activities of the Secretary" includes those activities performed, in whole or in part, in carrying out the functions of—

(A) naval reactors development and propulsion,

(B) weapons activities, verification, and control technology,

(C) defense materials production,

(D) inertial confinement fusion,

(E) defense waste management, and

(F) defense nuclear materials, security, and safeguards, all as included in the appropriations account of the Department in any fiscal year for such functions.

(3) The term "civilian nuclear activities" means those atomic energy activities not performed as atomic energy defense activities as defined by this Act; and includes, in part, Government agency, and nongovernment atomic energy research, development, and demonstration activities that are not such atomic energy defense activities, and nongovernment production of electricity by nuclear powerplants.

(4) The term "Commission" means the Nuclear Regulatory Commission.

(5) The term "Department" means the Department of Energy.

(6) The term "disposal" means the emplacement in a repository of high-level radioactive waste or spent fuel with no foreseeable intent of recovery, whether or not such emplacement permits the recovery of such waste.

(7) The term "disposal package" or "package" means the primary container which holds and is in contact with solidified waste, spent fuel, or other radioactive materials and any overpacks which are emplaced at the repository.

(8) The term "engineered barriers" means manmade components of the disposal system designed to prevent the release of radionuclides into the geologic media, and includes, among other things, the waste form, the waste canisters, and other materials to be placed over and around the waste canisters.

(9) The term "environmental impact statement" means any document prepared in compliance with section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)).

(10) The term "Governor" means the Governor of a State or his designee.

(11) The term "high-level radioactive waste" or "waste" means highly radioactive materials resulting from the reprocessing of spent fuel, including liquid waste produced directly in such reprocessing or any solid material into which such liquid waste is converted, spent fuels designated by the Secretary to be unsuitable for technical reasons for reprocessing, transuranic waste, certain nonfuel materials activated by neutron bombardment as may be designated by the Secretary or the Commission, and such other highly radioactive material as the Secretary or the Commission shall designate as high-level radioactive waste.

(12) The term "Indian tribe" means an Indian tribe, as defined in section 4(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 540b(b)).

(13) The term "nuclear waste repository" or "repository" means (except as provided in section 4 of this Act) any facility for the deep geologic disposal of the solid forms of high-level radioactive waste, spent fuel, or any combination of such materials, whether or not such facility is designated to permit the subsequent recovery of the materials placed in the repository.

(14) The term "reservation" means—

(A) the Indian reservations and dependent Indian communities referred to in clauses (a) and (b) of section 1151 of title 18, United States Code; and

(B) lands selected by Alaska Native villages or regional corporations under the provisions of the Alaska Native Claims Settlement Act.

(15) The term "Secretary" means the Secretary of Energy.

(16) The term "site characterization" means activities including borings, surface excavations, shaft excavations, subsurface lateral excavations and borings, and in situ testing to determine the suitability of a site

for a test and evaluation facility or a repository or both, but does not include preliminary borings and geophysical testing needed to decide whether site characterization should be undertaken.

(17) The term "solidified waste" means high-level radioactive waste which has been processed to produce a solid form that meets the requirements for transportation and permanent disposal promulgated pursuant to this Act or other Acts of Congress.

(18) The term "spent fuel" means nuclear fuel that has been irradiated in, and recovered from, a civilian nuclear powerplant or other civilian nuclear activities and which has not undergone reprocessing to separate constituent elements.

(19) The term "State" means any State of the United States, the District of Columbia, and, subject to the provisions of the Act of March 12, 1980 (94 Stat. 84), the Commonwealth of Puerto Rico, the Virgin Islands, Guam, the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and any other territory or possession of the United States.

(20) The term "Test and Evaluation Facility" or "demonstration facility" means an at-depth, prototypic, underground cavity with subsurface lateral excavations, extending from a central shaft, which is used for re-

search and development purposes, including the development of data, and experience for the safe handling and disposal of solidified waste or spent fuel.

(21) The term "transuranic waste" means material containing elements which have an atomic number greater than ninety-two, including neptunium, plutonium, americium, and curium, which have a half-life greater than five years, and which are in concentrations of greater than ten nanocuries per gram or in such other concentrations as the Commission may determine.

(22) The term "tribal council" means the governing body of an Indian tribe or tribes.

FINDINGS AND PURPOSES

SEC. 3. (a) FINDINGS.—The Congress finds that—

(1) spent fuel from nuclear power reactors and wastes from the commercial industry are accumulating rapidly and may create a national problem;

(2) State and public participation in the planning and development of repositories for the disposal of high-level radioactive waste and spent fuel is essential in order to promote public confidence in methods for the safe disposal of such waste and spent fuel;

(3) the technology exists to provide reasonable assurance that high-level radioactive waste and spent

fuel can be safely disposed of and that disposal facilities for high-level wastes and spent fuel can be made available when needed; and

(4) it is in the national interest to resolve issues relating to the nuclear fuel cycle because—

(A) a reliable system adequate to provide sufficient electrical energy to meet the Nation's current and anticipated needs is an essential part of both interstate commerce and comprehensive national energy policy and is vital to the national security and public welfare; and

(B) an adequate electrical system requires a diversified base of primary energy sources in order to avoid excessive reliance upon any single alternative energy source.

(b) PURPOSE.—It is the purpose of this Act—

(1) to establish the Federal policy and the responsibilities for the disposal of high-level radioactive waste and spent fuel from civilian nuclear activities;

(2) to accelerate and provide direction to the Secretary in regard to the disposal of high-level radioactive waste and spent fuel; and

(3) to authorize the Secretary—

(A) to provide for the construction, operation, and maintenance of deep geologic waste disposal facilities; and

(B) to provide for a focused and integrated nuclear waste and spent fuel research and development program, including the development of a Test and Evaluation Facility to carry out research and provide an integrated demonstration of the technology for deep geologic disposal of waste, and the development of the facilities to demonstrate dry storage of spent fuel;

(4) to provide the Secretary with contracting authority to collect, in advance, from the users of nuclear technology, the costs of carrying out this Act;

(5) to provide for an improved cooperative role between the Federal Government and States, localities, and Indian tribes in the siting of facilities for the disposal of waste and spent fuel; and

(6) to provide technical and financial assistance to States, localities, and Indian tribes to foster the development and implementation of programs to prevent and mitigate any adverse economic, social, or environmental impacts resulting from construction and operation of repositories.

APPLICATION

SEC. 4. The provisions of this Act shall not apply to the siting, construction, or operation of repositories which are used exclusively for the disposal of high-level radioactive waste, low-level radioactive waste, or spent fuel resulting from the atomic energy defense activities of the Secretary.

MISSION PLAN

SEC. 5. (a) The Secretary shall prepare a comprehensive report, to be known as the mission plan, which shall provide an informational basis sufficient to permit informed decisions to be made in carrying out the repository program and the research, development, and demonstration programs required under this Act. The mission plan shall include—

(1) an identification of the primary scientific, engineering, and technical information, including any necessary demonstration of engineering or of systems integration, that should be available, and that must be available, before responsible determinations can be made with respect to the siting and construction of a Test and Evaluation Facility and repositories;

(2) an identification of which information referred to under subparagraph (1) is not available because of any unresolved scientific, engineering, or technical questions, or undemonstrated engineering or systems integration; a schedule including specific major mile-

stones for the research, development, and technology demonstration program required under this Act and any additional activities to be undertaken to provide such information; a schedule for the activities necessary to achieve important programmatic milestones; and an estimate of the costs required to carry out such research, development, and demonstration programs;

(3) an evaluation of financial, political, legal, or institutional problems which might impede the implementation of this Act, the Secretary's plan to resolve these problems, and recommendations for any necessary legislation to resolve them; and

(4) a discussion by the Secretary regarding the advisability and technical necessity for proceeding with additional test and evaluation facilities at sites other than the one selected pursuant to section 11 and any comments of the Secretary on the program and purpose of the Test and Evaluation Facility required under section 11; and in the case where the Secretary has identified the development of any such additional facilities—

(A) the reasons that the Secretary considers such development to be appropriate (including information determined to be necessary under paragraph (1)(B) which the Secretary seeks to obtain);

(B) the designation of potential sites for any such facilities; and

(C) the period of time during which any such facilities would operate, the date at which waste or spent fuel stored at such facilities would be removed, and the sites to which such waste or fuel would be moved.

(5) a discussion of the significant results of research and development programs conducted and the implications for each of the different geologic media under consideration for the siting of repositories, and, on the basis of such information, a comparison of the advantages and disadvantages associated with the use of such media for repository sites; and

(6) the guidelines issued pursuant to subsection 6(b) provided that the guidelines shall become effective pursuant to section 6 notwithstanding subsections (b) and (c) of this section.

(7) A description of the known sites at which site characterization activities should be undertaken; a description of the site characterization activities, including the extent of planned excavations, plans for onsite testing with radioactive or nonradioactive material, plans for any investigation activities which may affect the capability of the site to isolate wastes or spent fuel,

and plans to control any adverse, safety-related impacts from site characterization activities; plans for decontaminating and decommissioning of the site if it is determined unsuitable for licensing as a repository.

(8) An identification of the process for solidifying waste or packaging spent fuel, including a summary and analysis of the data to support the selection of the solidification process and packaging techniques; an analysis of the requirements for the number of solidification and packaging facilities needed; a description of the state of art for the materials proposed to be used in packaging the wastes or spent fuel and the availability of the materials including impacts on strategic supplies and any requirements for new or reactivated facilities to produce the needed materials; and a description of a plan, and the schedule for implementing the plan, for an aggressive research and development program to provide when needed a high-integrity disposal package at a reasonable price.

(9) An estimate of (A) the total repository capacity required to safely accommodate the disposal of all radioactive waste and spent nuclear fuel generated through the year 2020 in the event that no commercial reprocessing of spent fuel occurs, as well as the repository capacity which would be so required if such repro-

cessing did occur, (B) the number and type of repositories required to be constructed to provide such disposal capacity, (C) a schedule for the construction of such repositories, and (D) an estimate of the period during which each repository listed in the schedule would be in operation filled to its maximum extent.

(10) An estimate of the costs required (A) to construct and operate the repositories anticipated to be needed under paragraph (8) based on each of the assumptions referred to in such paragraph, (B) to construct and operate a Test and Evaluation Facility or facilities determined to be necessary (other than such repositories included under clause (A)), and (C) to carry out any other activities under this Act.

(11) An identification of the possible adverse economic and other impacts to the State or tribe involved which may arise from the development of a Test and Evaluation Facility, or repository, at a site.

(b)(1) Not later than fifteen months after the date of the enactment of this Act, the Secretary shall submit a draft mission plan to the States, the Nuclear Regulatory Commission, and other Government agencies the Secretary deems appropriate for their comments.

(2) In preparing any comments on the mission plan, such agencies shall specify with precision any objections that

they may have. Upon submission of the mission plan to such agencies, the Secretary shall publish a notice in the Federal Register of the submission of the plan and of its availability for public inspection, and, upon receipt of any comments of such agencies respecting the plan, the Secretary shall publish a notice in the Federal Register of the receipt of comments and of the availability of the comments for public inspection. If the Secretary does not revise the plan to meet objections specified in the comments, the Secretary shall publish in the Federal Register a detailed statement for not so revising the plan.

(3) The Secretary, after reviewing any other comments made by such agencies and revising the plan to the extent that the Secretary may consider to be appropriate, shall submit the mission plan to the appropriate committees of the Congress not later than seventeen months after the date of the enactment of this Act. The mission plan shall be effective at the end of the first period of thirty calendar days (not including any day on which either House of Congress is not in session because of adjournment of more than three calendar days to a day certain) after the date of transmittal of the plan.

(c)(1) Every year after the mission plan first takes effect under this section, the Secretary shall submit to the Congress a report describing in detail the progress made toward implementation of the plan. The report shall include any revisions or amendment to the mission plan which the Secretary considers appropriate to accomplish the purposes of this Act.

(2) Any amendment to an approved mission plan shall be submitted to the Congress, either in a report under paragraph (1) or at such other time as the Secretary considers appropriate, and the amendment shall become effective in the same manner as provided under paragraph (1).

IDENTIFICATION OF SITES FOR WASTE REPOSITORIES

SEC. 6. (a) PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT.—Within twelve months after the date of enactment of this Act, the Secretary shall complete a final programmatic environmental impact statement (pursuant to the National Environmental Policy Act of 1974, and consistent with this Act) on the management of radioactive waste and spent fuel generated through civilian nuclear activities.

(b) GUIDELINES.—Not later than six months after the date of the enactment of this Act and notwithstanding the failure of other agencies to promulgate standards pursuant to applicable law, the Secretary shall, in consultation with the Commission, the United States Geological Survey, the Environmental Protection Agency, the Council on Environmental Quality, and such other Government agencies as the Secretary considers appropriate, issue (pursuant to subchapter II of chapter 5 of title 5, United States Code) general guidelines for the selection of sites for repositories. Under such guidelines the Secretary shall specify factors that would qualify or disqualify a site for development as a repository, including factors pertaining to the location of valuable natural resources, proximity to populations, hydrogeophysics, seismic activity, and nuclear defense activities. The guidelines shall require the Secretary to consider the various geologic media in which sites for repositories may be located and, to the extent practicable, to identify sites in different geologic media. The Secretary shall use guidelines established under this subsection in considering and selecting sites pursuant to this Act.

(c) SITE IDENTIFICATION BY THE SECRETARY.—Not later than one year after the date of the enactment of this Act, and subsequent to promulgation of guidelines pursuant to subsection (a), the Secretary shall identify three or more sites, at least two of which shall be in different geologic media in the continental United States, and at least one of which shall be in media other than salt. Subject to Commission requirements, the Secretary shall give preference to sites for the initial repository in media possessing geochemical characteristics which retard aqueous transport of radionuclides. In order to provide a greater possible protection of public health and safety as operating experience is gained at the initial repository, and with the exception of the primary candidate sites as presently named by the Secretary, all sites identified under section 6(a) shall be more than fifteen statute miles from towns having a population of greater than one thousand persons as determined by the most recent census unless such sites contain high level radioactive waste prior to identification under this Act. Each site identified shall be supported by a detailed statement of the basis for the identification. When the Secretary identifies a site, the Secretary shall as soon as possible notify the Governor of the State in which the site is located, or the tribal council of any Indian tribe on whose reservation the site is located, of such identification and the basis therefor. Additional sites may be identified after the one year period, following the same procedure as if such sites had been identified within that period.

SITING RESEARCH AND RELATED ACTIVITIES

SEC. 7. (a) IN GENERAL.—Within forty-two months after the date on which the Secretary identifies the sites pursuant to subsection 6(b), the Secretary shall in consultation with the Commission complete, at no fewer than three identified sites such siting research activities, including site characterization activities as may be necessary to prepare the required environmental reports and to evaluate the suitability of a site for a repository: *Provided,* That three sites shall be sufficiently evaluated, within thirty months after the date on which the sites are identified, to permit the Secretary to select a site for the expanded siting research activities and for other activities both pursuant to section 11. The Secretary shall conduct such preconstruction activities relative to such site selection for the Test and Evaluation Facility as he deems appropriate: *Provided, however,* That facilities exclusively used for the Test and Evaluation Facility shall not be constructed on such site prior to the effective date of the initial repository site selection or rejection. Additional sites may be evaluated after the forty-two month period, following the same procedures as if such sites were to be evaluated within that period.

(b) PUBLIC MEETINGS AND ENVIRONMENTAL ASSESSMENT.—Within six months after identifying the sites pursuant to subsection 6(c) and before beginning site characterization activities, the Secretary shall—

(1) hold at least one public meeting in the vicinity of each site to inform the residents of the area of the activities to be conducted at the site and to receive their views; and

(2) prepare an environmental assessment, in implementing the National Environmental Policy Act of 1969, of the nonradiological impacts of the site characterization activities planned for such site and discuss, in such assessment, the alternative site characterization

activities which may be undertaken to avoid such impacts.

(c) RESTRICTIONS.—Except as provided in section 11 with respect to the Test and Evaluation Facility, in conducting site characterization activities or tests for the repository pursuant to subsection (b)—

(1) the Secretary shall use the minimum quantity of waste or other radioactive materials, if any, necessary to achieve the test or research objectives;

(2) the Secretary shall ensure, to the maximum extent practical, that any radioactive material used or placed on a site shall be fully retrievable; and

(3) upon termination of site characterization activities at a site for any reason, the Secretary shall remove any radioactive material at or in the site as promptly as practicable.

REPOSITORY SITE SELECTION

SEC. 8. (a) HEARINGS AND SECRETARIAL DECISIONS.—(1) Before selecting a site for a repository and within three months after completion of the site characterization, the Secretary shall hold at least one legislative-type public hearing in the vicinity of the site that the Secretary intends to select to inform the residents of the area in which the site is located of the preliminary determination of the Secretary and to receive their comments. Upon completion of the hearing process, if the Secretary determines to select that site for a repository, the Secretary shall immediately notify the Governor of the State in which such proposed repository would be located or the appropriate tribal council of his decision, and a Repository Development Report as required under section 9(b) shall be submitted to Congress by the President.

(2) If the Secretary's selection of a site for a repository does not take effect because of disapproval by the President or the Congress under section 9, the President shall submit to the Congress within twelve months after such disapproval a Repository Development Report for another site as selected by the Secretary for a repository.

(b) SUBMISSION OF APPLICATION.—(1) If the Secretary's selection of a site for a repository is not disapproved by the President or the Congress under section 9, the Secretary shall—

(A) submit to the Commission, within thirty days after the date on which the selection of the site becomes effective under section 9, a license application for a repository at such site; and

(B) provide the Governor of the State in which the site is located, or the tribal council of any Indian tribe on whose reservation the site is located, a copy of the application.

(2) The Commission shall consider the application (including amendments thereto) only on the basis of those considerations set forth in the Atomic Energy Act of 1954.

(c) LICENSING STATUS REPORT.—No later than twenty-four months after the date on which an application for a license is submitted under subsection (b), and annually thereafter until the date on which an operating license is issued, the Commission shall submit a report to the Congress describing the proceedings undertaken through such date with regard to such application, including a description of—

(1) any major unresolved safety issues and the Secretary's explanation of design and operation plans for resolving such issues;

(2) any matters of contention regarding the application; and

(3) any Commission actions regarding approval or disapproval of the application or the operating license.

The Secretary shall cooperate with the Commission in supplying information necessary for the report.

(d) REPOSITORY LICENSING AND CONSTRUCTION.—(1) The Commission shall consider an application (including amendments thereto) for a license for all or part of a repository in accordance with this Act the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, except that the Commission shall make a final decision approving or disapproving the issuance of construction authorization not later than twenty-four months after the date of the submission of the application: *Provided,* That the Commission, with the Secretary's concurrence, may extend the period for making such final decision by up to twelve additional months if, within thirty days after the expiration of the twenty-four-month period, it finds that such decision can probably be made within such twelve additional months and that the issuance of a construction authorization is more probable than not, and if it complies with the reporting requirements relative to a delay in the project decision schedule under subsection 10(e). If the Commission disapproves an application, the Secretary shall select another site in compliance with section 8 as soon as possible. Prior to receiving a license application, the Commission shall, to the maximum extent practical, keep itself fully and currently informed about the activities of the Department that are pertinent to the licensing process and conduct any activities that may help the Commission to minimize the time needed to consider the potential application. Consistent with the Department of Energy Organization Act (Public Law 95-91), the Secretary shall cooperate with the Commission and provide the Commission with the necessary information to keep it fully and currently informed.

(2) Notwithstanding any other provision of law to the contrary, in any Commission hearing pursuant to the Atomic

Energy Act of 1954 on an application for a construction authorization or a license relating to a repository (or any amendment to such a license), the Commission shall first provide the parties to the proceeding with an opportunity to submit for the record such written data, views, or arguments as the hearing board may specify. At the request of any party, the hearing board shall provide an opportunity for oral argument with respect to any matter which the hearing board determines to be in controversy among the parties. The hearing shall be preceded by such discovery procedures as the rules of the Commission shall provide, and as ordered by the hearing board. The hearing board shall require each moving party, including the Commission staff, to submit in written form, at the time the proceeding is initiated, a summary of the facts and arguments upon which that party proposes to rely unless the board finds that such requirement will unduly dalay the proceeding.

(3)(A) At the conclusion of any hearing under paragraph (2), the hearing board shall designate any disputed question of fact, together with any remaining questions of law, for resolution in an adjudicatory hearing only if it determines that—

(i) there is a genuine and substantial dispute of fact involving factual assumptions or methodology upon which expert opinion is based, or concerning the credibility or competence of an expert witness significantly relied upon by one or more of the parties to the proceeding, which can only be resolved with sufficient accuracy by the introduction of reliable and specifically identified evidence in an adjudicatory hearing;

(ii) such dispute involves a technical matter affecting the public health and safety of construction, operation, decommissioning, or long-term postoperational performance of the facility which is the subject of the hearing; and

(iii) the decision of the Commission is likely to depend in whole or in part on the resolution of such dispute.

(B) In making a determination under this paragraph, the hearing board shall designate in writing the specific facts that are in genuine and substantial dispute, the reason why the decision of the agency is likely to depend on the resolution of such facts, and the reason why an adjudicatory hearing is likely to resolve the dispute.

(4) No court shall hold unlawful or set aside a decision of the Commission in any proceeding described in paragraph (2) or (3) because of a failure by it to use a particular procedure pursuant to this section unless—

(A) an objection to the procedure used was presented to the hearing board in a timely fashion or there are extraordinary circumstances that excuse the failure to present a timely objection, and

(B) the court finds that such failure has precluded a fair consideration and informed resolution of a central issue of the proceeding taken as a whole.

(5) No member of a hearing board in a proceeding pursuant to this subsection on an application for a construction authorization may raise for consideration in such hearing an issue not put in contention by a party to the hearing, except that the Commission, on its own motion, may direct the hearing board to raise in such hearing any matter, whether or not put in contention by any party, whose resolution it believes may be essential to the hearing board's decision in the proceeding. No member of a hearing board in any other proceeding pursuant to this subsection may raise for consideration in such hearing an issue not put in contention by a party to the hearing, except in extraordinary circumstances, or except that the Commission, on its own motion, may direct the hearing board to raise in such hearing any matter, whether or not put in contention by any party, whose resolution it believes may be essential to the hearing board's decision in the proceeding.

(6) In any Commission hearing on such an application, the Commission shall not admit or consider any contentions by any party (with the exception of the Governor of the State

in which the repository site is located, or the tribal council of the Indian tribe on whose reservation the site is located) in public proceedings unless the party offering the contention supports it with substantial and specific facts, not in the nature of conclusory allegations, supported by affidavits of persons having knowledge of the facts therein.

(7) Within 6 years after the date on which the Secretary obtains a construction authorization from the Commission pursuant to subsection (b)—

(A) the Secretary (subject to such terms and conditions as the Commission may require pursuant to the Atomic Energy Act of 1954) shall complete construction of surface facilities and such subsurface excavations and facilities as are needed to initiate emplacement of wastes;

(B) the Secretary shall operate the repository at the earliest practical date after receiving a license from the Commission; and

(C) the Commission shall approve or disapprove the issuance to the Secretary of a license relating to all or part of a repository under such terms and conditions as may be specified by the Commission to protect the public health and safety. Any hearings held pursuant to the Atomic Energy Act of 1954 prior to the issuance of a license (including amendments thereto) to operate the repository shall be limited to health and safety issues not decided at the construction authorization stage.

(8) To the fullest extent permitted by law, the Secretary and any officer or employee of a Government agency to which this Act applies may provide information to the Commission and consult with the Commission at any time and in any manner requested by the Commission.

(9) The Commission shall consider a license application (including amendments thereto) relating to a repository in accordance with the laws applicable to such applications, except as otherwise provided in this Act; and except that the environmental impact statement prepared by the Secretary, and concurred with by the Commission pursuant to section 9(b), with respect to the site for any repository, shall be deemed to also satisfy the Commission's responsibilities under the National Environmental Policy Act of 1969 with respect to that repository (including but not limited to consideration of alternative sites).

(10)(A) Any time after filing an application with the Commission for a license relating to a repository (or for any amendment to such a license), the Secretary may submit a petition to the Commission for issuance of a construction authorization, license or license amendment on an interim basis prior to the conduct or completion of any required hearing upon such application.

(B) The Commission shall grant the petition submitted under subparagraph (A) and issue the construction authorization, license or license amendment on an interim basis if the Commission or its designee determines that—

(i) in all respects other than the conduct or completion of any required hearing, the requirements of law are met; and

(ii) in accordance with such requirements, there is reasonable assurance that the activities authorized by the construction authorization, license or license amendment during the interim period, in accordance with the terms and conditions of such construction authorization, license or license amendment, will provide adequate protection to the public health and safety. There shall be no disposal of waste or spent fuel in the repository for which such interim license has been issued until such time as the regular license to receive and possess waste in the repository is issued.

(11) Notwithstanding any failure of the Environmental Protection Agency to promulgate standards pursuant to subsection 10(b), within 6 months after the date of the enactment of this Act the Commission shall promulgate its rules

and criteria to apply in reviewing license applications (including amendments thereto) for the construction and operation of repositories.

(12) The Secretary may take title at the repository, in the name of the Government, to the waste, spent fuel, or other radioactive material emplaced in the repository.

REPOSITORY SITING REVIEW AND REPORTS

SEC. 9. (a) CONSULTATION AND CONCURRENCE.—(1) The State or any tribal council notified of a site identification under subsection 6(c) shall have the right to participate in a process of consultation and concurrence as soon as the site has been identified pursuant to such section and throughout the life of the repository involved. For purposes of this section, the term "process of consultation and concurrence" means a methodology—

(A) by which the Secretary—

(i) keeps the Governor or tribal council where appropriate, fully and currently informed about any potential economic or public health and safety impacts in all stages of the siting, development, construction, and operation of a repository;

(ii) solicits, receives, and evaluates concerns and objections of the Governor or the tribal council with regard to the repository on an ongoing basis; and

(iii) works diligently and cooperatively to resolve such concerns and objections; and

(B) by which the State can exercise reasonable independent monitoring and testing of on-site activities related to all stages of the siting, development, construction and operation of the repository: *Provided*, That any such monitoring and testing shall not unreasonably interfere with on-site activities.

(2) The Secretary may enter into written agreements with the Governor of the State in which an identified site is located or with the tribal council of any Indian tribe on whose reservation an identified site is located in order to expedite the consultation and concurrence process. Any such written agreement shall specify—

(A) procedures by which the State or tribal council may study, determine, comment on, and make recommendations with regard to the possible health, safety, and economic impacts of the repository involved;

(B) procedures by which the Secretary may consider and respond to comments and recommendations made by the State or tribal council, including the period in which the Secretary may so respond;

(C) the documents the Department is to submit to the State or tribal council, the timing for such submissions, the timing for the State or tribal council to identify public health and safety concerns and the process to be followed to try to eliminate those concerns;

(D) procedures by which the Secretary and either the State or the tribal council may review or modify the agreement periodically; and

(E) procedures for public notification of the procedures specified under subparagraphs (A) through (D).

(3) Except as specifically provided herein, nothing in this Act is intended to grant any State or Indian tribe any authority with respect to the siting, development, or loading of any repository.

(b) REPOSITORY DEVELOPMENT REPORTS.—The Secretary shall complete a Repository Development Report and submit it to the President within 6 months after completing the hearing process required under subsection 8(a). The Repository Development Report shall contain—

(1) an environmental impact statement for the site, prepared with the concurrence of the Commission on the intended scope, outline, and alternatives to be considered;

(2) the views and comments of—

(A) the Governor of the State in which the repository site is located and the tribal council of any Indian tribe on whose land the site is located;

(B) the Governor of any other interested State that may be directly and substantially affected by a repository at the proposed site;

(C) the public;

(D) such other Federal agencies as the Secretary considers appropriate; and

(E) the Secretary, in response to any views and comments pursuant to this section;

(3) a license application for the repository prepared by the Secretary for submission to the Commission; and

(4) a plan for the transport of spent fuel and high-level radioactive or transuranic waste to the repository.

(c) Presidential Review of Sites.—(1) Within thirty days after the submission of the Repository Development Report, the President shall either approve the site and transmit notice of the approval and the report to the Congress, or disapprove the site and submit notice of the disapproval to the Congress.

(2) The selection of a site for a repository shall be effective at the end of the thirty-day period beginning on the date that the President transmits notice of his approval of such site to the Congress under paragraph (1) unless the Governor of the State in which the site is located has submitted to the Congress a petition for disapproval, or, where appropriate,

the tribal council of an Indian tribe on whose reservation the site is located has submitted such a petition. If any such petition has been submitted, the selection of the site shall not be effective except as provided under subsection (d).

(3) If either House or both Houses are not in session on the day the President's notice of approval of a site and the Repository Development Report are received by the appropriate officers of each House, such Repository Development Report shall be deemed to have been transmitted on the first succeeding day on which both Houses are in session.

(d) Congressional Review of Sites.—(1) If the President transmits notice of his approval to the Congress under subsection (c) and either the Governor of the State or the tribal council submits to the Congress a petition for disapproval under subsection (b), the selection of such site for the repository involved shall be effective at the end of the first period of forty calendar days of continuous session of the Congress after the date of the transmittal of such petition by the Governor or tribal council unless, during such period, either House of the Congress passes a resolution the matter after the resolving clause of which reads as follows: "That the approves the petition submitted by regarding the disapproval of the site at for a repository." (with the first blank space being filled with the designation of the appropriate House of the Congress, the second blank space being filled with the name of the Governor or the Indian tribe whose petition is approved, and the third blank being filled with the geographic location of the proposed repository site). For purposes of paragraphs (3) through (8) of this subsection, the term "resolution" means a resolution described by this paragraph.

(2) Paragraphs (3) through (8) of this subsection are enacted by the Congress—

(A) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by paragraph (1) of this subsection; and the provisions of such paragraphs supersede other rules only to the extent that they are inconsistent therewith; and

(B) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of the House.

(3) A resolution once introduced with respect to any site selection shall immediately be referred to the committee or

committees of jurisdiction (and all resolutions with respect to the same site selection shall be referred to the same committee or committees) by the President of the Senate or the Speaker of the House of Representatives, as the case may be.

(4) If any committee to which a resolution with respect to a site selection has been referred has not reported it at the end of twenty calendar days after its referral, such committee shall be automatically discharged from further consideration of such resolution.

(5)(A) When all committees to which the resolution was referred have reported, or have been discharged from further consideration of, a resolution, it shall be at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) to move to proceed to the consideration of the resolution. The motion shall be highly privileged and shall not be debatable. An amendment to the motion shall not be in order, and it shall not be in order to move to reconsider the vote by which the motion was agreed to or disagreed to.

(B) Debate on the resolution referred to in subparagraph (A) shall be limited to not more than four hours, which shall be divided equally between those favoring and those opposing the resolution. A motion further to limit debate shall not be debatable. An amendment to, or motion to recommit, the resolution shall not be in order, and it shall not be in order to move to reconsider the vote by which the resolution was agreed to or disagreed to.

(6)(A) Motions to postpone, made with respect to the consideration of a resolution, and motions to proceed to the consideration of other business, shall be decided without debate.

(B) Appeals from the decision of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to a resolution shall be decided without debate.

(7) Notwithstanding any of the provisions of this subsection, if either House has approved a resolution with respect to a site selection, then it shall not be in order to consider in that House any other resolution with respect to the same site selection.

(8) For the purpose of this subsection—

(A) continuity of session is broken only by an adjournment of the Congress sine die; and

(B) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of any period of time in which Congress is in continuous session.

GOVERNMENT AGENCY ACTIONS

SEC. 10. (a) GENERAL.—(1) Government agencies shall assist the Secretary by cooperating and coordinating with the Secretary in the preparation of any necessary reports, including the Mission Plan, the Repository Development Report, and the Project Decision Schedule.

(2) No action of the Secretary or any other Government agency required by this Act to be taken prior to the effective date of the selection of a repository site shall be considered to be a major Federal action for purposes of the National Environmental Policy Act of 1969, or shall require the preparation of environmental impact statements, except when otherwise specifically provided for in this Act.

(3) The Secretary and the heads of all other Government agencies shall, to the maximum extent possible, avoid duplication of efforts in the preparation of reports pursuant to the National Environmental Policy Act of 1969.

(b) ENVIRONMENTAL PROTECTION AGENCY.—Within four months after the date of the enactment of this Act, the Administrator of the Environmental Protection Agency shall, by rule promulgate, generally applicable standards for protection of the environment from radioactive material in repositories required pursuant to Reorganization Plan Numbered 3 of 1970.

(c) PROJECT DECISION SCHEDULE.—(1) The Secretary shall prepare and update, as appropriate, in cooperation with all concerned Government agencies, a Project Decision Schedule that portrays the optimum way to attain the operation of the repository involved, within the time periods specified in this Act. It shall include a sequence of events for all agencies required to take action, including an identification of the activities in which a delay in the start, or completion, of such activities will cause a delay in beginning repository operation.

(2) Notwithstanding any other provision of Federal law, the Project Decision Schedule shall constitute the lawful decisionmaking deadlines for the agencies concerned. Any Government agency that determines that it cannot comply with the schedule, or fails to so comply, shall submit to the Secretary and to Congress a written report explaining the reason for its failure or expected failure to meet the deadline, the reason why the agency could not reach an agreement with the Secretary, the estimated time for completion of the activity or activities involved, the associated effect on its other deadlines in the Project Decision Schedule, any recommendations it may have or actions it intends to take regarding any improvements in its operation or organization, or changes to its statutory directives or authority so that it will be able to mitigate the delay. The Secretary, within thirty

days after receiving such report, shall file with the Congress its response to the agency's report, including the reasons why the Secretary could not amend the Project Decision Schedule to accommodate the agency.

RESEARCH AND DEVELOPMENT ON WASTE DISPOSAL

SEC. 11. (a) PURPOSE.—Within sixty-four months after the date of the enactment of this Act as part of and as an extention of the siting research activities at these sites conducted pursuant to subsection 7(a) and subsequent to the effective date of the initial repository site selection or rejection), the Secretary shall begin the mining and construction, at a site evaluated pursuant to section 7, of a Test and Evaluation Facility for the following purposes:

(1) to supplement and focus the repository site characterization process at the most promising site under consideration for a repository;

(2) to provide the conditions under which known technological components can be integrated to demonstrate a functioning repository-like system;

(3) to provide a vehicle for focusing attention on, for evaluating, and for resolution of potential licensing issues which could not be resolved during the siting research program pursuant to subsection 7(a);

(4) to validate, under actual conditions, the scientific models used in the design of the repository;

(5) to refine the design and engineering of repository components and systems and to confirm the predicted behavior of such components and systems;

(6) to supplement the siting data, the generic and specific geological characteristics developed pursuant to section 7 relative to isolating disposal materials in the physical environment of a repository.

(7) to evaluate the design concepts for packaging, handling, and emplacement of waste and spent fuel at the design rate; and

(8) to establish operating capability without excessive worker radiation dose.

(b) DESIGN.—The Secretary shall design the Test and Evaluation Facility—

(1) with a capacity for receiving a minimum of forty, and a maximum of three hundred, full-sized canisters of solidified waste; except that, if such waste cannot be obtained under reasonable conditions, spent fuel may be used instead of solidified waste;

(2) for full retrievability of solidified wastes, or other radioactive material used by the Secretary for testing, upon completion of the technology demonstration activities; and

(3) based upon the principle that the waste, spent fuel, or other radioactive material shall be isolated from the biosphere in such a way that the initial isolation is provided by engineered barriers functioning as a system with the geologic environment.

(c) OPERATION.—Within eighty-eight months after the date of the enactment of this Act, the Secretary shall begin the in situ testing program in accordance with the Mission Plan developed pursuant to section 5, in which he shall—

(1) conduct in situ tests of bore hole sealing, geologic media fracture sealing, and room closure to establish the techniques and performance for isolation of the waste, spent fuel, or radioactive materials from the biosphere;

(2) conduct in situ tests with radioactive sources and materials to evaluate and improve reliable models for radionuclide migration, absorption, and containment within the engineered barriers and the geologic media: *Provided*, That such tests shall only be conducted if the Secretary believes there is reasonable assurance that the radioactive sources will not threaten the use of the site as a repository;

(3) conduct in situ tests to evaluate and improve models for ground water or brine flow through fractured geologic media;

(4) conduct in situ tests under conditions representing the real time and the accelerated time behavior of the engineered barriers within the geologic environment;

(5) conduct in situ tests to evaluate the effects of heat and pressure on the geologic media, on the hydrology of the surrounding area, and on the integrity of the disposal packages;

(6) conduct in situ tests under both normal and abnormal repository conditions to establish safe design limits for disposal packages and gross release of radionuclides into surroundings, and the effects of various credible failure modes, including but not limited to—

(A) seismic events leading to the coupling of aquifers through the Facility;

(B) thermal pulses significantly greater than the maximum calculated; and

(C) human intrusion creating a direct pathway to the biosphere; and

(7) conduct such other research and development activities as the Secretary considers appropriate, including use of waste, spent fuel, or other radioactive materials for test and evaluation purposes, provided such other activities are reasonably necessary to support the repository program and there is reasonable as-

surance that the radioactive sources will not threaten the use of the site as a repository.

(d) The Secretary may also use existing Department facilities for the conduct of generically applicable tests on the packaging, handling, and emplacement technology for solidified high-level radioactive waste and spent fuel from civilian nuclear activities during site characterization and for as long as the Secretary deems appropriate.

(e) LIMITATIONS.—(1) The Test and Evaluation Facility shall not be used as a disposal facility unless so authorized by the Commission pursuant to this Act or other applicable law. If such Facility is located at the site of a repository, the Secretary shall obtain the Commission's concurrence on the decontamination and decommissioning of such Facility.

(2) If the site of the Test and Evaluation Facility is not selected for a repository, then the Secretary shall conduct only that part of the in-situ testing program required under subsection (c) as the Secretary determines to be useful in carrying out the purposes of this Act.

(3) The operation of the Test and Evaluation Facility shall terminate within five years after the date the initial repository begins operation, or sooner if the Secretary determines that the continued operation of the facility is not necessary for research, development, and demonstration purposes.

(f) ENGINEERED BARRIERS.—The system of engineered barriers and selected geology shall have a design life at least as long as that which the Commission requires by regulations issued pursuant to this Act or the Atomic Energy Act of 1954 for repositories.

(g) NUCLEAR REGULATORY COMMISSION ROLE.—(1) Within one year from the date of the enactment of this Act, the Secretary and the Commission shall reach a written understanding establishing the arrangements for consultation and coordination in the planning, construction, and operation of the Test and Evaluation Facility in accordance with this Act. The understanding shall stipulate a schedule, consistent with the dates specified in this Act, for the Secretary's submission of, and the Commission's review of and necessary action on;

(A) The Mission Plan prepared pursuant to section 5; and

(B) Such reports and other information as the Commission may reasonably require to evaluate any health and safety impacts of the Test and Evaluation Facility.

(2) The understanding shall stipulate the conditions under which the Commission may have access to the Test and Evaluation Facility for the purpose of assessing any public health and safety concerns that it may have.

(3) The Test and Evaluation Facility and the facilities authorized in section 12 shall be constructed and operated as a research, development, and demonstration facilities and shall not be deemed subject to licensing pursuant to section 202 of the Energy Reorganization Act of 1974.

(h) The Secretary shall enter into a written agreement with the Governor of the State in which the Test and Evaluation Facility site is located, or the tribal council of any Indian tribe on whose reservation the Test and Evaluation Facility site is located, establishing the arrangements for a consultative and cooperative role in the construction and operation of the Test and Evaluation Facility. The Secretary shall report to the appropriate committees of Congress on the status of his efforts pursuant to this subsection.

(i) The Secretary shall prepare an environmental assessment prior to excavating major shafts for the Test and Evaluation Facility, and shall prepare an Environmental Impact Statement pursuant to the National Environmental Policy Act of 1969, prior to conducting tests with radioactive materials. Nothing in this subsection shall be construed to limit site characterization activities conducted pursuant to section 7. This subsection shall apply only to those activities performed exclusively for the Test and Evaluation Facility.

RESEARCH AND DEVELOPMENT ON SPENT FUEL

SEC. 12. (a) The Secretary shall establish a demonstration program, in cooperation with the private sector, for the dry storage of spent fuel at nuclear powerplant sites. Within one year after the date of enactment of this Act, the Secretary shall select at least one, but no more than three candidate sites at nuclear powerplants. In selecting the site or sites, the Secretary shall give preference to utilities which will soon have a shortage of interim storage capacity for spent fuel. Subject to reaching agreement as provided for in subsection (b), the Secretary shall undertake activities to assist the utilities with demonstration projects at such sites, which may use one of the following types of alternate storage technologies: spent fuel storage casks, caissons, or silos. The Secretary shall also undertake a cooperative program with utilities to encourage the development of the technology for spent fuel rod consolidation in existing reactor water storage basins.

(b) To carry out the programs required under subsection (a), the Secretary shall enter into a cooperative agreement with the concerned utilities which specifies, at a minimum, that—

(1) the utility shall select the alternate storage technique, make the land and spent fuel available for the dry storage demonstration, submit and provide site-

specific documentation for a license application to the Nuclear Regulatory Commission, construct the facility and obtain a license relating to the facility, operate the facility after licensure, pay the costs required to construct the facility and pay all costs associated with the operation and maintenance of the facility; and

(2) the Secretary shall provide, on a cost-sharing basis, consultative and technical assistance, including the design support and the generic licensing documentation, to help the utility obtain the construction authorization and appropriate license from the Nuclear Regulatory Commission.

(3) the Secretary shall provide generic research and development of alternative spent fuel storage techniques to enhance utility-provided, at-reactor storage capabilities as authorized elsewhere, and further authorized herein.

(c) The consultative and technical assistance referred to in paragraph (b)(2) may include, but shall not be limited to, the establishment of a research and development program for the dry storage of not more than three hundred metric tons of spent fuel at existing facilities. The purpose of this research shall be to collect necessary data to assist the utilities in their licensing process.

(d) The total contribution from the Secretary from funds provided by annual authorizations and appropriations Acts and the use of any Government facilities or services shall not exceed 25 per centum of the total costs of the program authorized under this section as estimated by the Secretary. All remaining costs shall be paid by the specific utilities involved or shall be provided by the Secretary from the fund established under section 15 of this Act.

STATE PAYMENT

SEC. 13. The Secretary (subject to the next sentence) shall pay to each State or Indian tribe which has entered into an agreement pursuant to section 9(a)(2)—

(1) the sum of $3,000,000 per year from the date on which the site involved was identified to the date on which a site is selected pursuant to section 8: *Provided,* That such a payment may only be made to a State in which a potential site for a repository has been identified under subsection 6(c), or to an Indian tribe on whose land the potential site has been identified under such section; and

(2) the sum of $10,000,000 per year from the date on which the site selection has become effective to the date on which the Secretary declares the repository to be filled to capacity and ready for decommissioning: *Provided,* That such a payment may only be made to a

State in which a site, selected pursuant to section 8, is located, or to an Indian tribe on whose land the selected site is located.

The Secretary shall make any payment to a State under paragraph (1) or (2) only if the State agrees to provide, to the local governing body or bodies within whose jurisdiction the potential site or effectively selected site is located, at least one-tenth of the payments made by the Secretary to that State under both paragraphs (1) and (2). The State or Indian tribe shall otherwise have discretion to use the payment for whatever purpose it deems necessary including, but not limited to, the State or tribal activities pursuant to agreements entered into in accordance with section 9. Annual payments shall be pro-rated on a three hundred and sixty-five-day basis to the specified dates.

JUDICIAL REVIEW OF AGENCY ACTIONS

SEC. 14. (a) JURISDICTION.—Notwithstanding any other provisions of law, the actions of Government officers or agencies pursuant to this Act shall not be subject to judicial review except as provided in this section. Except for review in the Supreme Court of the United States, the United States Court of Appeals for the District of Columbia shall have original and exclusive jurisdiction over—

(1) any civil action for review of any final decision or action of any Government agency or office under

this Act: *Provided,* That no action of any Government agency or office prior to the effective date of the selection of a repository site shall be considered a final decision or action with respect to that site; and

(2) any civil action challenging the constitutionality of any decision made, or action taken, under this Act.

(b) SUPREME COURT REVIEW.— The Supreme Court of the United States shall have exclusive authority to review any interlocutory judgment or order of the Court of Appeals pursuant to this section. The appellant may file a petition for certiorari or a certification as provided in section 1254 of title 28, United States Code, not later than fifteen days after the decision of the Court of Appeals.

(c) EXPEDITIOUS REVIEW.—The United States Court of Appeals for the District of Columbia and the Supreme Court of the United States shall exercise their powers in such manner as to expedite the determination of cases over which they have jurisdiction under this section. The Court of Appeals shall render its decision on any claim within ninety days from the date the claim is brought unless—

(1) the Court determines that a longer period of time is required to satisfy the requirements of the United States Constitution, or

(2) the Federal agency or officer is not enjoined from complying with the Project Decision Schedule.

(d) TIME LIMITATIONS.—A civil action for judicial review of any decision or action described in subsection (a) may be brought not later than the thirtieth day after the date of the decision or action, except that if a party shows that such party did not know of the decision or action, and that a reasonable person acting under the circumstances would not have known, such person may bring the civil action no later than thirty days after the date such person acquired actual or constructive knowledge thereof.

PROGRAM FINANCING

SEC. 15. (a) CONTRACTING AUTHORITY.—In the performance of his functions under this Act, the Secretary is authorized to enter into contracts with persons licensed under sections 53, 103, and 104 of the Atomic Energy Act of 1954, or other persons possessing waste or spent fuel for the purposes of this Act: *Provided*, That prices for disposal services under such contracts shall be established (1) on a nondiscriminatory basis, (2) on such basis as will provide sufficient funds in advance of obligation or expenditure for the functions and activities undertaken to carry out the purposes of this Act, and for the recovery of any funds appropriated to carry out this Act over a reasonable period of time, and (3) on such basis as will assure that no person is required to pay more than his anticipated pro rata share of the estimated costs of carrying out this Act: *And provided further,* That the Secretary shall establish criteria in writing setting forth the terms and conditions under which services under such contracts are to be made available.

(b) LICENSING CONDITIONS.—Notwithstanding any other provision of law, the Commission shall not issue a license (including amendments thereto) to any person to use a utilization or production facility under the authority of section 103 or 104 of the Atomic Energy Act of 1954 unless (1) such person has entered into an agreement with the Secretary under subsection (a), or (2) the Secretary affirms in writing that such person is actively and in good faith negotiating with the Secretary for an agreement under subsection (a): *Provided,* That the Commission, as it deems necessary or appropriate, may require as a precondition to the issuance of a license (including amendments thereto) for any other purpose under section 53, 103, or 104 of the Atomic Energy Act of 1954 that the applicant will have entered into an agreement with the Secretary for the disposal of any waste or spent fuel that may result from the applicant's use of such license.

(c) ESTABLISHMENT OF NUCLEAR WASTE FUND.—There is established in the Treasury of the United States a nuclear waste fund (hereinafter in this section referred to as the "fund"). The fund shall consist of (1) all receipts, proceeds, and recoveries realized by the Secretary pursuant to subsections (a) and (e), which shall be deposited in the fund immediately upon their realization; (2) the unexpended balances of any moneys available on the effective date of this Act for functions or activities necessary or incident to the disposal of waste or spent fuel, which shall be automatically transferred to the fund on that date; and (3) any appropriations made by Congress to the fund.

(d) USE OF FUND.—To such extent or in such amounts as are provided in appropriation Acts, the Secretary may make expenditures from the fund, without further appropriation and without fiscal year limitation but within such specific directives or limitations as may be included in authorization Acts, for any purpose necessary or appropriate to the conduct of the Secretary's functions and activities or the provision or anticipated provision of services pursuant to this Act, including but not limited to (1) the disposal of waste and spent fuel, (2) the conduct of research, development, and demonstration activities related to the disposal of waste and spent fuel, (3) the acquisition, design, construction, modification, replacement, and operation of facilities necessary or incident thereto, and (4) the making of payments pursuant to section 14.

(e) INVESTMENT.—If the Secretary determines that the moneys in the fund at any time are in excess of current needs, he may request the Secretary of the Treasury to invest such excess or so much thereof as he deems advisable in obligations of the United States having maturities suitable for the needs of the fund and bearing interest at rates determined by the Secretary of the Treasury taking into consideration the current average market yield on outstanding marketable obligations of the United States with remaining periods to maturity comparable to the maturities of such investments: *Provided,* That the interest rate on such investments shall not exceed the average interest rate applicable to existing borrowing.

(f) APPORTIONMENT EXEMPTION.—Receipts, proceeds, and recoveries realized by the Secretary pursuant to this section, and expenditures from the fund, shall be exempt from annual apportionment under the provisions of section 3679 of the Revised Statutes (31 U.S.C. 665).

Mr. **Ottinger**. My good friend and ranking minority member, Mr. Moorhead, has just arrived, and I see he has a statement in his hand, so I will recognize him at this point.

Mr. **Moorhead**. Thank you, Mr. Chairman.

As President Reagan stated the other day, the American people desire the safe and efficient disposal of nuclear waste, and the necessary technology and scientific expertise is available. Now it is up to the Congress to enact Federal legislation to deal with this issue.

The Energy and Commerce Committee is the only committee in either House of the Congress that has yet to report out a bill which deals with nuclear waste disposal, and I hope these hearings today and Thursday will pave the way for prompt legislative action by our subcommittee and the full committee on this issue.

It would indeed be tragic if our subcommittee or full committee failed to respond in a bipartisan and timely fashion to this pressing problem, because the inevitable result of our failure will be that many of our Nation's powerplants will have to shut down.

In my own State of California, the Department of Energy projects that San Orrofre Units 1, 2, and 3 will need 102 metric tons of offsite spent fuel storage capacity by 1989, and 343 metric tons by 1991, or else shut down.

Many other utility powerplants around the country face similar problems. Thus our committee must, as the other congressional committees with jurisdiction of this issue have done, formulate legislation to deal with the near-term problem of exhaustion of spent fuel storage capacity at the site of many operating plants.

Additionally, legislation in this area must include provisions for the construction and operation of a permanent waste repository for such spent fuel and other high-level nuclear waste. It is imperative that both the near-term problem of interim storage and the long-term problem of permanent disposal be handled simultaneously.

If we deal only with the interim problem, there will be no pressure for permanent disposal, and if we deal only with the problem of scheduling a permanent repository, many utilities will be shut out of storage space for spent fuel, possibly before a site for such permanent repository is even selected.

I believe both of these objectives can be accomplished while fully providing for the public health and safety, which must be, of course, our paramount concern. I further believe that these objectives can be accomplished with full consultation and cooperation with the States. I stand ready to work with my colleagues on both sides of the aisle to insure that it is not the subcommittee on which I serve that is responsible for failing to provide a solution to this urgent national problem.

Mr. **Ottinger**. The gentleman from Oregon, Mr. Wyden.

Mr. **Wyden**. Thank you very much, Mr. Chairman.

On behalf of Congressman Swift of Washington, who is chairing another hearing, and myself, I would like to give a very brief opening statement. I think we understand in this country that nuclear waste, like diamonds, are forever. Like diamonds, safe storage is of utmost importance. In the case of diamonds, we need a secure storage place to protect them from harm. In the case of nuclear waste, we need a secure storage place to protect us from harm, to protect us from the threat that this waste poses to our health and safety.

But safe storage, the selection of the most appropriate site, is not the only issue before us today.

Of particular importance to Congressman Swift and myself is the identification of the proper site and the need to assure that all parties through the review and selection process have a fair opportunity to participate. To do otherwise is to invite outcries or lawsuits and the possibility that the chosen site will be vetoed.

I strongly support provisions to allow the Congress to have the ultimate say when a State vetoes a site, but quite frankly, I don't believe a State veto process will provide the affected State a legitimate forum to present its case. Few States will possess the political muscle necessary to insure a veto is upheld.

Fairness throughout this entire process in my opinion is going to produce real dividends in the future. I think there are two particular concerns that dominate the fairness issue. The first is the timespan in which sites are characterized; and second is the entity in charge of conducting the characterizations and ultimate site selection recommendations to the President.

Simply put, the shorter the timespan for site selection, the stronger the bias is going to be toward sites that have familiar names in our nuclear history.

Similarly, when the entity in charge of site recommendation is one with a poor track record in dealing with concerned citizens and State governments in an open environment, then suspicions as to impartiality are bound to arise. Concerns will exist that the site was selected and the characterization tailored to fit a conclusion really arranged in advanced.

Several of the witnesses today are going to describe the working relationship between DOE, State governments, and citizens. From what I have heard prior to this hearing, it is less than a satisfactory relationship. Congressman Swift, myself and other members of the Energy and Commerce Committee are deeply concerned that whatever process this committee adopts, that above all it be a fair and impartial one. We are open to alternatives to relying on the Secretary of Energy to etablish criteria for site characterizations and to make the ultimate site recommendation.

Perhaps the way to go may be to establish an independent site selection and site characterization review body. I think that is one of the alternatives we ought to look at.

As we produce and enter markup, we hope our colleagues will enter this process with a completely open mind and give serious consideration to all the proposals that may develop.

Thank you, Mr. Chairman.

Mr. OTTINGER. The gentleman from New Jersey, Mr. Rinaldo, has a short statement.

Mr. RINALDO. Thank you, Mr. Chairman.

Before I give my statement, I request unanimous consent to submit for the record the statement of Congressman Broyhill, the ranking minority member of the full committee, who could not be with us this morning because of a prior commitment.

Mr. OTTINGER. Without objection, it is so ordered.

[The statement and attachment of Mr. Broyhill follow:]

REMARKS OF HONORABLE JAMES T. BROYHILL
BEFORE THE SUBCOMMITTEE ON ENERGY CONSERVATION AND POWER

JUNE 8, 1982

HEARING ON NUCLEAR WASTE LEGISLATION

I WELCOME OUR WITNESSES HERE TODAY TO TESTIFY ON NUCLEAR WASTE LEGISLATION. I ASK UNANIMOUS CONSENT THAT COPIES OF S. 1662 AS PASSED BY THE SENATE, H.R. 3809, AS REPORTED BY THE HOUSE INTERIOR COMMITTEE, H.R. 5016 AS REPORTED BY THE HOUSE SCIENCE COMMITTEE, AND THE MAY 26, 1982 ENERGY AND COMMERCE COMMITTEE STAFF DISCUSSION DRAFT BE INSERTED AT THIS POINT IN THE HEARING RECORD.

WE MEET IN A SPIRIT OF COMPROMISE, MR. CHAIRMAN, ON THIS VITAL SUBJECT WHICH IS SO IMPORTANT TO THE SECURITY OF OUR DOMESTIC ENERGY SOURCES AND THE HEALTH OF PRESENT AND FUTURE GENERATIONS OF AMERICANS.

FOR OVER 30 YEARS, THE EFFICIENT USE OF NUCLEAR POWER HAS BEEN A CRUCIAL ELEMENT IN OUR DOMESTIC ENERGY MIX. IN 1982, 75 EXISTING NUCLEAR POWER PLANTS WILL PROVIDE OVER 13% OF OUR ELECTRICITY, AND IN SEVERAL REGIONS OF THE COUNTRY, SUCH AS PARTS OF NEW ENGLAND, ILLINOIS, AND MY HOME STATE OF NORTH CAROLINA, IT WILL PROVIDE OVER 50% OF OUR POWER NEEDS -- SUMMER AND WINTER, DAY IN AND DAY OUT.

BETWEEN NOW AND THE YEAR 2000, DOE AND NRC PROJECT THAT 75 NEW NUCLEAR PLANTS WILL COME ON LINE, NOT ONLY TO MEET THE NEED FOR RELIABLE POWER IN CLEAN GROWING REGIONS OF THE COUNTRY, SUCH AS THE SOUTHWEST AND FAR WEST, BUT ALSO TO DISPLACE OLD, EXPENSIVE, OIL-FIRED AND GAS-FIRED CAPACITY IN THE INDUSTRIAL HEARTLAND OF OUR MIDWEST AND EASTERN SEABOARD.

FOR OVER 30 YEARS, RANGING FROM THE LANDMARK STUDIES OF THE NATIONAL ACADEMY OF SCIENCES IN THE 1950'S TO LAST MONTH'S OFFICE OF TECHNOLOGY ASSESSMENT REPORT, THE SCIENTISTS HAVE TOLD US THAT THE TECHNOLOGY FOR THE SAFE STORAGE AND DISPOSAL OF NUCLEAR WASTE IS "HERE AND NOW", AND THAT ALL WE LACK IS A COMPREHENSIVE NATIONAL BLUEPRINT TO PUT IT INTO ACTION.

BUT, AFTER 30 YEARS OF CONGRESSIONAL INACTION AND EXECUTIVE BRANCH POLICY REVERSALS, WE ARE RUNNING OUT OF TIME. THE TECHNOLOGY MAY STILL BE "HERE AND NOW" BUT FOR MANY OLDER NUCLEAR PLANTS WHICH WILL RUN OUT OF SPACE TO STORE THEIR SPENT FUEL AT THEIR REACTOR SITES BEFORE THE FEDERAL GOVERNMENT COMPLETES ITS FIRST PERMANENT WASTE REPOSITORY. "HERE AND NOW" MAY WELL BE "HERE AND GONE".

MANY OF THESE OLDER REACTORS ARE IN MY OWN SOUTHEAST REGION OF NORTH CAROLINA, SOUTH CAROLINA, VIRGINIA AND FLORIDA. THESE REACTORS WERE BUILT WHEN IT WAS ASSUMED THE FEDERAL GOVERNMENT WOULD TAKE CUSTODY OF SPENT FUEL BY THE EARLY 1970'S AND REPROCESS IT FOR RE-USE. THEN THE CARTER ADMINISTRATION BANNED REPROCESSING IN 1977, AND THESE UTILTIEIS WERE LEFT HOLDING THE BAG. THE CARTER ADMINISTRATION PROMISED THEM THE GOVERNMENT WOULD BUILD A CENTRALIZED STORAGE FACILITY, BUT CONGRESS NEVER ACTED. THEN, THE REAGAN ADMINISTRATION REVERSED COURSE AGAIN, LIFTING THE BAN ON REPROCESSING AND OPPOSING FEDERAL FUNDING OF SPENT FUEL STORAGE FACILTIES.

TWELVE POWER PLANTS IN THE SOUTHEAST REGION, ACCORDING TO DOE PROJECTIONS, WILL RUN OUT OF SPENT FUEL STORAGE SPACE BY 1990 -- 8-17 YEARS BEFORE THE GOVERNMENT PROJECTS THE FIRST REPOSITORY WILL BE AVAILABLE.

FOR THIS REASON, EVERY SENATE AND HOUSE COMMITTEE WHICH HAS REPORTED NUCLEAR WASTE LEGISLATION HAS INCLUDED AN INTERIM STORAGE PROGRAM TO "HELP UTILITIES HELP THEMSELVES" WITH AT-REACTOR SITE STORAGE AND A LIMITED "LAST RESORT" OFF-SITE STORAGE.

I ASK UNANIMOUS CONSENT THAT DOE'S MARCH, 1981 LIST OF PLANTS RUNNING OUT OF ON-SITE SPENT FUEL STORAGE BE INCLUDED IN THE RECORD.

MR. CHAIRMAN, OUR COMMITTEE IS THE ONLY RELEVANT COMMITTEE IN CONGRESS WHICH HAS FAILED TO REPORT A COMPREHENSIVE WASTE BILL THIS CONGRESS. WE ARE THE ONLY COMMITTEE STANDING BETWEEN THIS IMPORTANT BILL AND A LEGISLATIVE ACHIEVEMENT THAT IS 30 YEARS OVERDUE.

I AM PLEASED THAT IN THE LAST FEW WEEKS YOU AND I HAVE AGREED ON A BIPARTISAN COMPROMISE ON THIS ISSUE. WE HAVE AGREED AT A MINIMUM THAT A NUCLEAR WASTE BILL MUST INCLUDE:

1. A FIRM SCHEDULE LEADING TOWARD COMPLETION OF A DEEP GEOLOGIC REPOSITORY FOR DISPOSAL OF NUCLEAR WASTE, WITH A FULL ENVIRONMENTAL REVIEW AND NRC LICENSING.

2. AN INTERIM SPENT FUEL STORAGE PROGRAM PROVIDING LICENSING REFORMS TO EXPEDITE ON-SITE SPENT FUEL STORAGE AND A LIMITED,

"LAST-RESORT" OFF-SITE STORAGE PROGRAM AT EXISTING FEDERAL FACILITIES TO BRIDGE THE GAP BEFORE THE FIRST REPOSITORY IS AVAILABLE EARLY NEXT CENTURY AND ASSURE UTILITIES THEY WILL NOT HAVE TO SHUT DOWN USEFUL POWER PLANTS FOR LACK OF SPENT FUEL STORAGE SPACE.

3. FULL STATE AND LOCAL AND PUBLIC PARTICIPATION IN THE SITING, CONSTRUCTION AND OPERATION OF NUCLEAR WASTE FACILITIES, THROUGH A FEDERAL-STATE "CONSULTATION AND COOPERATION" TO INSURE PUBLIC CONFIDENCE IN THE STORAGE AND DISPOSAL OF WASTE THROUGHOUT THE PROGRAM.

4. UP-FRONT PRIVATE FINANCING OF THE ENTIRE PROGRAM THROUGH USER FEES ON NUCLEAR UTILITIES WHICH WILL RAISE OVER $14 BILLION THROUGH THE YEAR 2000, BUT ADD AN AVERAGE OF ONLY 75 CENTS TO THE AVERAGE FAMILY'S ELECTRIC BILL.

MR. CHAIRMAN, I LOOK FORWARD TO OUR HEARING TODAY, AND I SALUTE YOU FOR YOUR LEADERSHIP ON THIS CRITICAL ISSUE.

The following presents the Department's preliminary estimates of the Nation's spent fuel storage requirements. These storage requirements represent the additional storage capacity that must be provided in order to enable continued reactor operation. A report of requirements will be available in the near future.

	Utility	Year Additional Storage Capacity Is First Required* (Year)	Cumulative Additional Storage Capacity Required Through 1992* (MTU)
1.	Virginia Electric and Power Company	1985	280
2.	Carolina Power and Light company	1986	335
3.	Consumers Power Company	1986	117
4.	Florida Power and Light Company	1986	351
5.	Philadelphia Electric Company	1987	366
6.	Boston Edison Company	1988	105
7.	Rochester Gas and Electric Company	1989	49
8.	Duke Power Company	1989	223
9.	Northeast Utilities	1989	96
10.	Northern States Power Company	1989	94
11.	Power Authority - State of New York	1989	177
12.	Yankee Atomic Electric Company	1989	63
13.	Southern California Edison Company	1990	113
14.	Dairyland Power Cooperative	1990	10
15.	Maine Yankee Atomic Power Company	1992	29
16.	Baltimore Gas and Electric Company	1992	20
17.	Commonwealth Edison Company	1992	13
18.	Detroit Edison Company	1992	17
	Total		2458

*Assumptions:
(1) Pool capacities increased to the maximum.
(2) No transshipment except where licensed by the Nuclear Regulatory Commission.
(3) Onsite transfers as planned.
(4) Full core reserve capacity maintained.

Mr. RINALDO Mr. Chairman, I want to commend you for your efforts to initiate proceedings in this subcommittee with regard to nuclear waste management legislation. I listened attentively to your opening statement, and I am pleased that we are moving forward, because as you know, the Senate recently passed a comprehensive waste bill. Also both the full House Science and Technology and Interior and Insular Affairs Committees have reported bills. That leaves the Energy and Commerce Committee as the only principal committee of jurisdiction which must report legislation.

It is interesting to note that both Democratic and Republican platforms have called for aggressive action on this matter. This feeling is shared in my view by the public at large. It is not an issue which should involve a debate on the future of nuclear energy. Both industry and environmental groups recognize that we should get on with the job.

A recent OTA report indicates that the technology for nuclear waste disposal is clearly available. I think you certainly put it in perspective in your opening statement. However, legislation has been delayed by a continuing debate on certain aspects of the program, and by what I consider a parochial interest for a problem which is in reality national in scope.

The key elements of a national nuclear waste policy have been defined. Now only minor differences remain to be settled. These differences are political rather than technological in nature.

If a bill is not reported by our full committee by the end of June, it is highly unlikely that any legislation will pass the Congress this year. So, as one member of this subcommittee, I want first of all to commend you for scheduling these hearings, for moving forward, and finally, to assure you that I am going to join you in your effort to expedite passage of a comprehensive nuclear waste management legislation through this subcommittee as well as through the full committee, because in my view it is certainly something that is long overdue, and drastically needed.

Thank you, Mr. Chairman.

Mr. OTTINGER. I thank the gentleman.

We are going to hear next from one of our colleagues on the committee, the gentleman from Nevada, Mr. Santini. The gentleman from Nevada has had tremendous interest in this subject, and participated actively in the deliberation of the issue in the last Congress. Since you are from one of the States that has a tremendous interest in this, and may indeed be one of the repository States, we particularly value having your testimony today. You may proceed.

STATEMENT OF HON. JIM SANTINI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEVADA

Mr. SANTINI. Thank you, Mr. Chairman.

Between the subject matter of MX missile and its siting and nuclear waste disposal, you could have one Congressman worrying about those two subjects and the other Congressmen taking care of the balance of the national interest.

Mr. Chairman and members of the subcommittee, I appreciate having the opportunity to appear before you today to discuss an issue of the highest priority to me and, as you observed, Mr. Chairman, to the residents of the State of Nevada. The decisions that are made by this subcommittee and by Congress as a whole will affect not only the residents of the State of Nevada, but quite obviously will impact generations to come. The thoughtful, deliberative review of nuclear waste legislation demonstrated by your subcommittee is to be commended.

I will attempt to take it in the order of topical concerns that you outlined, Mr. Chairman, in your introductory comments.

It is apparent that the Department of Energy plans to move quickly on its own agenda to decide where to place nuclear waste. In a speech to the Atomic Industrial Forum on April 6, Secretary Edwards stated that he had urged his staff to take the—nuclear waste—schedule we inherited and accelerate every one of the dates on it. Because of that type of administrative response to the critical issue of nuclear waste storage, I believe Congress will have to look extremely closely at the schedule to make certain that deadlines can be met without sacrificing any necessary scientific analysis.

Under both the Senate-passed bill and the legislation reported by the Interior Committee, sites will be chosen for characterization within 1 year or passage of this legislation—January 1984 in S. 1662. Such a short timeframe for making the "first cut" of sites virtually assures that the sites selected for characterization will be the ones DOE is most familiar with today.

And as the gentleman from Oregon observed in his preliminary comments for both himself and his colleague from the State of Washington, this obviously could tilt or taint or prejudice the judgment selection process that is included there.

As a representative from Nevada, I am most concerned about this process which could result in DOE looking not at the three best sites in the United States of America in terms of geology, hydrology and environment, but at the sites with which it is most familiar. This decision will be one of convenience.

There should be a national survey of potential locations prior to deciding which one of the sites should ultimately receive the nuclear waste.

Nevadans believe that we have certainly done our share for the nuclear program over the years. It seems to me ironic and inequitable for Nevada to be chosen as a waste repository only because we have taken on other nuclear responsibilities in the past.

It is absolutely essential that the potential repository States be made full partners in deciding where to locate nuclear waste. States must be kept fully apprised of DOE's activities within their boundaries, and assisted in every possible way. Unless the nuclear waste program receives the full confidence of the public in the locality of the potential repository, there is little likelihood that there will be a comfortable and convenient conclusion to this program.

I understand that testimony will later be given by State representatives who have met with less than forthright cooperation from the Department of Energy in the past. The gentleman from Oregon, a member of the subcommittee, made allusion to this in his preliminary comments. I hope that we can mandate such cooperation, Mr. Chairman, in this legislation.

Placement of a repository in a State is such a long-term, monumental action that I am persuaded that the States should have the right of absolute veto over the site selection. Those who disagree State that nobody will accept the waste in that case. To such arguments, I would respond that the Department of Energy should have the purpose, offering such economic and other inducements along with guarantees of safety that would be sufficient to persuade a state to share part of the repository burden in the future. I don't think that is an unreasonable scenario.

Although I favor the absolute right of States' veto to such site selection, a majority of Members of Congress whose States are not under consideration for such proposal may disagree. If the DOE were looking at sites in 50 States, perhaps we wouldn't need an absolute veto consideration.

As a second choice, I support the concept of permitting a State to veto the site selection, subject to the passage of a joint resolution overriding that State veto. Such a provision was added in the Interior Committee under the leadership of Mr. Markey and with my support.

I hope the Interior Committee language, as a second choice, will be considered by this subcommittee.

Let us examine the Senate version. The two-House override of a State veto, I believe, puts the burden of proof, as the gentleman from Oregon observed earlier, in the court where it belonged in the first place, on the back of the Department of Energy. The odds against sustaining a State's veto are slim enough, once Members of Congress from other States know that their State has not been chosen.

To further put the burden of proof on a State to come forward and petition Congress, as required in the Senate legislation, makes the Senate veto futile and a hollow protection for the States concerned.

An effective State veto is essential because it gives the stick with which to compel Federal officials to cooperate. All the protections we may build into the legislation will be meaningless unless the Department of Energy is faced with the challenge and responsibility of a State veto, and must carry its burden of proof to the Congress of the United States.

I know that this subject has concerned the chairman in the past and will certainly be a subject of concern to the entire committee as it deliberates on prospective legislative vehicles. Nuclear waste generated by our defense program is the bulk of the waste existing in temporary storage today.

The Department of Energy estimates that the commercial waste would occupy approximately 104,000 cubic feet of space today, while defense waste would occupy more than 10 million cubic feet. Because the bulk of the problem is defense, I am persuaded that we must deal with it in this legislation and not ignore it because of the prospect that another committee might receive sequential referral.

I don't believe it is necessary for us to require that military and commercial waste be mixed in the same repository. But it is critical to make certain that safe and sound selection process is used for the military waste, and that there be some safety and licensing requirements.

How ironic and empty if we were to spend a great deal of time and effort in devising a fair program for the disposal of the commercial waste, which would surely protect the health of the public, and then ignore up to 80 percent of the problem, that coming from military sources. It doesn't matter to Nevadans whether the radiation is generated by a submarine or a reactor. I don't believe this committee should draw that irrational line, either.

Whatever legislation we enact, we should include provisions which would require that repositories be sited as closely as possible to the source of generation. This would minimize the principal danger concerned, that of transportation, and make it necessary to get the waste to its destination, and would also be more likely that the States that are receiving the benefits of the electrical energy generated would share the burden of assuming part of the responsibility for its disposal.

Nevadans receive virtually no nuclear power, and find it a little curious if not outright inequitable that we are the primary target for disposal of waste produced in other localities.

Finally, some proposals call for temporary storage of spent fuels at existing Federal facilities, and permit expansion of those facilities. I would urge the committee to require that such expansion go through a licensing procedure, if they are to be expanded. I can see no justification for a shortcut in that regard. Temporary storage has a very real potential to become permanent storage.

Again, I want to thank Chairman Ottinger for permitting me to present my views to the subcommittee today. I have outlined only the highlights of my concerns about nuclear waste.

I am ready to work with the subcommittee to develop a comprehensive, logical, equitable legislative product.

Thank you, Mr. Chairman, and members of the committee. I would be happy to respond to any inquiries you may have.

Mr. OTTINGER. Are there any questions?

Mr. MOORHEAD. I had just one. There may be several dealing with the same subject.

Your State happens to be one of those that has the largest areas. Very, very sparsely populated in the United States. Most of your population is in the Carson City-Reno area, or in Las Vegas, but there are many, many areas where you can go for 50 miles and not run into anybody.

Do you think that a State such as that should be able to veto without any possibility of overcoming the veto a determination that it is in the national good to establish a nuclear waste site in that State?

Mr. SANTINI. Carlos, in terms of the interests of the people of Nevada, most emphatically yes. Our sparse population is in part a consequence of the Federal ownership of 87 percent of our State, and the Federal Government's unwillingness in the past to permit permanent occupation of those areas by residents of the State of Nevada.

Secondarily, when a State such as Nevada is being asked to assume part or all of the burden and national responsibility of commercial, potentially military high-level waste disposal, it is the people of Nevada, it is the State of Nevada, it is our future that is potentially impaired by this national decision, and, in fairness, the people of Nevada ought to be given the right to say up or down, yes or no, whole or part, on that kind of national decision, and, in the past, we have had several examples of adverse national decisions running amok over the interests and concerns of the people of Nevada.

I am sure you would share my sensitivity, and I know you do, in part, if the proposed site for all national nuclear waste disposal were in your backyard, and, therefore, in bottom line, it seems to me that if I offer to you and the people, the constituents of your district, Carlos, the option of a veto, you would feel sufficient protection at least to move forward to discuss the matter, to determine what part of that responsibility you wanted to assume in your backyard.

In my judgment, as a practical matter, the veto is the only real way, as the gentleman from Oregon observed earlier, you are going to get any true cooperation between the Department of Energy working together with the people of Nevada, Washington, Louisiana, wherever—South Carolina, or wherever—to resolve this national problem.

Mr. **Moorhead**. I very strongly agree with you that the States should have a voice in where something would be located within the State, but I think that you do come to the point where, if you have areas that are so far from centers of population, and little or no development in those areas, that there should be some requirement in the national good that they agree to someplace within that State to accept that kind of waste.

If you don't have that requirement built into the law, if there isn't some escape clause, you might end up with 50 States saying no.

Mr. **Santini**. Does my dedicated friend from California believe that there is a safety problem with respect to the disposal of high-level nuclear waste?

Mr. **Moorhead**. I personally think that if nuclear waste is handled properly at this time, and is placed in sparsely-populated areas, where there is no danger to nearby communities of any kind, that there should be no difficulty whatsoever.

Mr. **Santini**. If there is no safety problem, and, of course, that is the contention by those who genuinely advocate the nuclear waste disposal as soon as possible under any-and-all-circumstances approach, then the issue of population is irrelevant, except as the impacts on the political realities of this decisionmaking process, and then it becomes an option if there is a political problem attendant to nuclear waste disposal.

Therefore, it is more convenient and plausible to solve the political problem by dumping it in sparsely populated States.

Mr. **Moorhead**. It is more than a political problem, though. If there is a concern by people that are within 25 miles or 50 miles of the particular spot, if there is a concern there that they live with, I think that is more than a political problem. If there are only a handful of people that might be between 25 and 50 miles, it is only a political problem and not one of any real concern.

Mr. **Santini**. I don't believe that the population density question can legitimately be brought to bear on the selection of Nevada as the site for permanent nuclear waste disposal for the Nation, because, by moving nuclear waste 2,000, 3,000, 500 miles from its site of generation, the most serious safety problem of all, transportation of the material, is greatly increased.

The exposure potentially to several populations is greatly increased just by virtue of the long haul for the burial of that nuclear waste, and I understand the political problem. I have less sympathy with the other problem.

Mr. MOORHEAD. I think my time is up.

Mr. OTTINGER. Are there any other questions?

Mr. MARKEY. I just have one question, and——

Mr. OTTINGER. The gentleman from Massachusetts is recognized.

Mr. MARKEY. I want to follow up on this issue of density.

Why should we adopt a criterion which excludes every State east of the Mississippi? Why shouldn't we consider Illinois or Mississippi, New York, Michigan, perhaps in their remote areas, for nuclear waste disposal? If it is safe, if it can be done without endangering public health or safety, why should we automatically exclude Eastern States in this legislation? Why shouldn't we open up every State to the potential of a nuclear repository being put in each State?

Mr. SANTINI. I think my good friend from Massachusetts makes a very generous offer, and I would hope that this committee, in its legislative execution, will expand the horizons to encompass those States, because that is certainly eminently logical.

Mr. OTTINGER. If I might make one statement I am a little bit concerned about. You say there seems to be no reason to you why any objection to having separate repositories for military and civilian waste.

It seems to me it is all the same stuff, and the military, I understand, is concerned that you not be able to identify what goes into our weapons by the character of the waste. In discussion with them, they seem to agree that it could be adequately disguised and waste could be delivered in a nonidentifiable form at the military gate. Once it is delivered, why should we have any separate procedure or separate place in which this waste is put, particularly, as you point out so forcefully, that there is far more military waste that we have to be concerned about at this juncture than civilian waste.

Mr. SANTINI. Mr. Chairman, I think ultimately again practicality and politics will have more to do with the disposition of high-level military waste than will science and legislative deliberation, but I agree that you could have one procedure. I agree you could have one repository. The case that is being made now is that we must keep them separate because of the national security question. You and your committee have firsthand testimony, and I hope will be permitted to deliberate intelligently on the validity of that assertion.

If there is going to be separate, the point I was attempting to make was that you conceivably could set up a different procedure for insuring safety and disposition for military than you had for commercial, and you could provide for—different sites could be provided for.

I agree with you. I think ultimately, wherever the commercial waste is located, military waste is soon to follow, and it seems to me that by piecemealing the problem, it is the attempt on those who conscientiously and sincerely want to solve the military waste not to include it, because that increases the political-legislative dilemma and problem.

So carve out the commercial, take care of the commercial first, and then when the front door is open for commercial, we can run the military in the back door, with much less difficulty. I think there is certainly a logic to that scenario, and to your question.

Mr. OTTINGER. It subjects States like your own to double jeopardy if the military waste is to be disposed of separately. A whole additional transportation factor that would be involved. I would hope that we could get the cooperation of the Armed Services Committee.

I have said that we would not hold up the bill; we will not see it defeated again because of the hangup on the military waste. I would hope, and the Department of Energy has agreed to undertake an effort, to see if we could not get cooperation from the Armed Services Committee. We could then provide in this bill that military waste would be received and would be subject to the procedures under this bill.

I am hopeful that that can be done.

Mr. SANTINI. I share that hope, Mr. Chairman.

Mr. OTTINGER. I thank the gentleman very much for his helpful testimony.

Mr. SANTINI. Thank you.

Mr. OTTINGER. We will hear next from Secretary Edwards and that will be followed by a State panel. I would like to apologize to the industry we had scheduled to appear today but because of the time limitations we had to cancel that. I understand that caused some inconvenience to some of their witnesses today. I regret that, but I think we are better off, we have scheduled another hearing on this subject Thursday.

By that time I hope we will know the points on which we agree with the minority and on those we do not and that we have specific language.

I would like to say that both the industry and the department have been very cooperative in working out these very difficult problems. We will be asking Secretary Edwards as well—although we will not have him back, I think—to comment on the specific language in those areas in which language is in disagreement, before we proceed to markup. We do, at least at this juncture, intend to proceed to markup next week, and intend to pursue a schedule so that the full committee consider this before Congress leaves for its July 4 recess.

My purpose is to see to it that some of the concerns that have been expressed by my friends from the minority, that we do act on this. My reason for delay was concern about an effort, an undue haste that would involve us in severely truncating the licensing, NEPA, judicial review, and public access problems.

I am hopeful that we have those problems behind us now, and that we will be able to proceed with full support on, if not all of these, most parties.

Secretary Edwards, we welcome you again before our subcommittee. I understand that you would like to read a statement. We would like to have you address some of the problems that I outlined today. Generally, I think that it is not worthwhile to read statements, since we all have them, but you may proceed as you see fit.

STATEMENT OF HON. JAMES B. EDWARDS, SECRETARY, DEPARTMENT OF ENERGY, ACCOMPANIED BY SHELBY BREWER, ASSISTANT SECRETARY FOR NUCLEAR ENERGY, HERMAN ROSER, ASSISTANT SECRETARY FOR DEFENSE PROGRAMS, AND LEON SILVERSTROM, ASSISTANT GENERAL COUNSEL

Secretary **Edwards**. Mr. Chairman, this is not my usual 20-page statement. It only consists of four or five pages, so I will read it very rapidly, if you would permit me.

Mr. **Ottinger**. You may proceed.

Secretary **Edwards**. Mr. Chairman, members of the subcommittee, I welcome this opportunity to discuss high-level nuclear waste legislation. Ever since Enrico Fermi and his colleagues set off their first chain reaction under the stands at Stagg Field in 1942, we have been accumulating radioactive waste.

When President Eisenhower launched Atoms for Peace in 1953, it was clear that the Government would eventually have to assume the responsibility for ultimate disposal of the high-level waste generated by research and power reactors. Public opinion polls show that an overwhelming percentage of the American people want this problem solved. This administration is ready to accept that responsibility. The President considers this matter of the greatest importance.

Today, spent fuel from commercial power reactors is being stored temporarily in 24 States across the United States—all radioactive, I might add. There are about 31,000 spent fuel assemblies in storage. So far, we have done a much better job of managing our nuclear waste than we have some of our toxic chemical wastes. But the time has come for permanent solutions.

That is why I am looking forward to passage of legislation this year. The progress during the last several months gives us reason for optimism. For the first time in many years, there is agreement among all the parties involved that we can wait no longer for a comprehensive solution to the waste problem. I am convinced that legislation will be passed this year. Minor differences remain to be resolved, differences that we all seem confident we will remove.

The President has already told Congress in an April 28 letter to Speaker O'Neill that passage of a high-level waste bill is of the utmost importance. If we continue acting in as cooperative a spirit as we have so far, we will be able to move boldly ahead in testing and developing geological disposal facilities for high-level waste.

I have been working on solving the waste issue since 1972, when I became a State senator in South Carolina. In all those years, there have been two times when I've felt we were about to make real progress. Once was in Boston in August 1978 when, as chairman of the National Governors' Association Committee on Nuclear Power, we reached an agreement on how to manage low-level waste. That agreement is the foundation for the progress that has followed since that time. Without fanfare, States have moved forward to accept the responsibility for low-level waste disposal.

The other time that I have felt progress was being made is right now. Thanks to the work of some very fine Members of Congress, a bill has been passed in the Senate; and we are, I am confident, with your active support and interest, close to witnessing passage of a bill in the House.

We can't afford to let this chance pass us by. We've had considerable discussion in recent weeks to iron out the remaining differences. The legislation to be enacted needs to provide a legislative framework to solve commercial high-level waste problems, including rational licensing regulations as well as effective public participation. It has to address expanded storage facilities, both at licensed reactors and elsewhere, as well as long-term geological disposal.

The act should tell us how to get from here to there; the steps along the way should be spelled out in advance. It makes no sense to deal with any part of the storage issue separately. Unless we deal with the short-term and the long-term problems, we'll wind up doing neither, as a recent Office of Technology Assessment report suggests.

Interim storage of spent fuel for which the utilities run out of room is not a separate issue. If such storage is seen as an alternative to a long-term solution, then, as I have said publicly on a number of occasions, I am against it. If, on the other hand, temporary storage is authorized as an integral part of a legislatively mandated long-term solution, and if that storage is paid for by utilities, then I have no objections—but only then. Offsite storage should be a last resort, not a first priority.

The passage of a nuclear waste act would fulfill a very practical, long overdue need. It also would lay the groundwork for renewing public faith in our Nation's ability to solve our problems. For some time we have known that there are no technical barriers to managing radioactive waste. The Department of Energy has a pilot geological project at Climax Stock in Nevada where spent fuel and simulated waste canisters are being stored and will be retrieved.

At Hanford, Wash., we have completed successful tests to vitrify nuclear waste, and we are perfecting methods of storing waste in the near surface test facility. We have also learned a great deal from managing military waste.

It is ironic that other countries have utilized technology developed in the United States to manage their own waste. It is time for us to use what we know to solve our own problems.

We have come close to settling the remaining institutional problems. The most effective method to finance the program is through users' fees that are administered by a public enterprise fund. We estimate that, assuming public utility commissions allow these fees to be passed on to the customers, a 1 mill per kilowatt hour surcharge would cost, at most, $10 a year to the average household.

I think we also agree that the legislation should provide a process to determine when and under what conditions the transfer of waste from utilities to the Federal Government should take place.

And, a very important and sensitive area on which we have reached basic agreement is on the rights of States to appeal site selections. State objections should be sustainable by a joint resolution of Congress. I am confident that we can forge a cooperative relationship between the Federal Government and the States to obviate the need to ever resort to that procedure.

Another important area that we seem to agree on is the elimination of unnecessary procedural impediments. For example, we need to reduce unnecessary duplication in complying with the National Environmental Policy Act. And we all seem to agree that expedited licensing procedures would assist greatly the ability of utilities to solve their own storage problems and minimize the necessity for storage away from their own facilities.

Finally, there is, I think, increasing support for our view that the current legislation should apply just to civilian generated waste. The consideration of defense waste issues also would jeopardize early enactment of pending legislation, and they should be addressed separately as urged in the President's letters to Congress.

Again, I cannot stress strongly enough my personal commitment, and the administration's commitment, to resolving a problem that has been with us all too long. We have the technology, and we have the major issues resolved: it is now time to act.

We will be happy to work with the subcommittee to develop this vital legislation.

I have with me today Shelby Brewer, Assistant Secretary for Nuclear Energy; Herman Roser, Assistant Secretary for Defense Programs; and Leon Silverstrom, Assistant General Counsel. We'd be happy at this time to answer any questions you may have.

Mr. **Markey** [presiding]. Thank you, Mr. Secretary.

Mr. Moorhead.

Mr. **Moorhead**. Good to have you with us again, Mr. Secretary.

Secretary **Edwards**. Thank you.

Mr. **Moorhead**. The volume of military waste generated by our weapons program exceeds civilian nuclear waste generated by powerplants by a factor of almost 100 to 1. Why is it important that nuclear waste legislation apply only to civilian waste, and exclude the military waste activities?

Secretary **Edwards**. Mr. Moorhead, although the volume per se is greater in the military wastes, the two kinds of waste forms are different. Because of the greater length of exposure of the material in the reactor, the commercial waste is much more radioactive than the defense waste. In addition to that, most of the defense wastes over the years have cooled off, so there is a difference between the two waste forms.

Basically, they are all radioactive wastes, but the commercial waste is much hotter, much more radioactive, than the defense waste.

Mr. **Moorhead**. NRC and the Senate Environment Committee have endorsed the onsite licensing reforms in the Senate-passed bill, in the May 26 discussion drafts of some of the members of our committee. These licensing reforms would simplify NRC licensing at reactor site spent-fuel storage, in order to reduce the need for away-from-reactor spent fuel storage. Do you support these onsite, spent fuel storage licensing reforms?

Secretary **Edwards**. Mr. Moorhead, I support any reform that maintains the safety and environmental values, and the reason I do is that I think that it would save us from having to build and utilities from having to expend a lot of money on away-from-reactor storage. When you get right down to it, all you have in onsite storage bins are great big cement swimming pools filled with water. Spent fuel rods are stored down in those large pools of water.

There is nothing very complex or mystical about it at all. If we could simplify the licensing procedure so that they could very simply continue to build, and in some way insure the adequate protection, I am in favor of doing that. Then we won't have to invest so much money in away-from-reactor storage while we build a permanent repository.

Mr. **Moorhead**. What role do you think the States should play in selecting sites? Do you believe they should have a veto, or how should their role be carried out?

Secretary **Edwards**. Mr. Moorhead, I guess I was the creator and the father of the term "consultation and concurrence." I created that at a time when I was Governor. We were trying to work out some way, some relationship between the Federal Government and the States. I was at that time coming from the State side. In the reverse role now I am coming from the Federal side. Nothing has changed since that time to change my mind, and I have always felt that whenever the Federal Government goes into a State, right from the very first moment that they start thinking about a State for a possible facility, they should bring on board the leadership, the Governors, the State legislators, the local county council, and tell them what they are going to do, right from the beginning cooperate with the States. Then, working together in a cooperative way, they should try to direct the program so that it could do the least bit of damage as possible to the State or that particular locale.

But when the final analysis is made, Mr. Moorhead, I think that the Federal Government is going to have to make the decision of where to place the site. I think that is too much to ask of a Governor or a county councilman to say, you know, you have the right to refuse this radioactive waste. The political pressures are so great. Let's face it. I haven't seen too many people rushing out saying bring that radioactive waste into my State, my town, or my county. It is an awful lot of pressure to put on a Governor. I don't think you should apply that pressure to a Governor, because you are never going to find an answer. I think the Federal Government is going to have to make the final determination that this is where we are going to place it after great study, and an in-depth knowledge and characterization of that particular site.

Mr. **Moorhead**. According to the latest DOE schedules, and assuming no delays, the earliest the first waste repository could be constructed, licensed to accept waste, would be 1998 to 2007. These schedules assume that the program will be subject to multiple environmental reviews, and no early cooperation on licensing between NRC and DOE.

Do you believe that your schedule for the first repository could be advanced several months to years without limiting the full State and local participation, if NEPA reviews are consolidated, and if DOE and NRC are mandated to resolve onsite specific licensing issues early?

Secretary **Edwards**. Mr. Moorhead, we put a man on the Moon, what, in 7 years I think it was, or 10 years. When they start talking about not being able to bury this stuff until the year 2007, I get a little irritated, because all the technology is there, and I think we can do the site characterization studies and accelerate this program markedly. At the same time, I want to also point out that we certainly don't want to accelerate it at the risk to the environment or public health and safety.

Mr. **Moorhead**. January 1, 1986, has been a date that has been given as a deadline for recommending the first repository, Do you believe that we can meet that schedule?

Secretary **Edwards**. Yes; I do.

Mr **Moorhead**. Mr. Udall in the Interior Committee has reported a bill which would provide for a limited program of last-resort interim spent-fuel storage at existing DOE facilities, and place the Federal purchase of an AFR such as the Barnwell, S.C., facility. Do you approve this particular approach?

Secretary **Edwards**. Mr. Moorhead, if you look upon one of these interim facilities as postponing the ultimate decision to bury waste, then I am against it. But if some of these utilities—and I have been informed that many of them are getting these spent-fuel rods backed up—don't have the storage facilities for spent fuel, they are going to have to close down. That would make us more vulnerable to foreign energy sources.

If they really need it, and after it has been determined by, say, the Nuclear Regulatory Commission that they are in fact out of space, they have got to do something so that they can continue to operate. Then I would certainly not object to some interim storage for these facilities. But once again, we have put this subject off and postponed and procrastinated. We have got some 30,000 of these spent fuel rods in some 50-odd different locations around the country. I think it is time we got them all together and put them in a safer permanent repository. As long as we don't look upon this interim storage as a "let's don't finally decide it yet" thing, I am in favor of it.

Mr. **Moorhead**. Thank you, Mr. Secretary.

Secretary **Edwards**. Thank you.

Mr. **Markey**. Mr. Wyden.

Mr. **Wyden**. Thank you, Mr. Chairman.

I, too, appreciate your coming up, Mr. Secretary, and I would like to use the next few minutes to get straight in my mind some of the administration's positions on issues that we are going to be facing.

The first question I would like to ask is, is it the administration's position that all costs associated with implementing a permanent disposal program be borne by the direct beneficiaries of nuclear power?

Secretary **Edwards**. Yes, the user fee concept. Yes.

Mr. **Wyden**. The second question I would like to ask is, What about impact assistance and other grants to affected States? Should the States bear a portion of these costs? Should they bear any of them, and if so, what portion are you thinking about?

Secretary **Edwards**. Since this is a national problem, I think the costs of any adverse impact on the State should be borne by the Federal Government, personally.

Mr. WYDEN. One hundred percent?

Secretary EDWARDS. Well, for the most part, not all of it, but for the most part. Maybe Mr. Silverstrom would like to take a shot at that.

Mr. SILVERSTROM. The Congress certainly has in a number of other pieces of legislation established some various ratios. The discussion draft suggested by the staff has thrown out some numbers. The Udall committee version talks about 75 percent. I think somewhere in the neighborhood the 75 percent to 90 percent would be acceptable.

Mr. WYDEN. The third question I would like to follow up on Mr. Moorhead's point about the AFR, the away-from-reactor storage sites. You said you were supportive of AFR's as an interim concept. What I am interested in, are there going to be Federal facilities for AFR's? Who is going to pay for those?

Secretary EDWARDS. The utilities would pay for them. If there was an agreement to pay for them out of the 1 mill per kilowatt hour fund. The utilities would be paying for them.

Mr. WYDEN. Are we going to use existing Federal facilities or new ones?

Secretary EDWARDS. I don't think we have decided that at this stage. But first I think we have to determine, and I would want it determined that we absolutely needed some interim storage. If the utilities could take care of their problem with some changes on site, with some reracking of the spent fuel or expanding their storage facilities on site, I wouldn't want away-from-reactor storage built just to get this material off their hands. But once again, if they absolutely need it, I would not object to their having some interim storage until we get to the final repository.

Mr. WYDEN. The last question I wanted to ask is, What is your feeling on the role of adjacent States who may have a direct and substantial interest in the existence of a site nearby? Should these States, for example, through which their exist major transport routes to a site should they be accorded a special standing in the site selection review process?

Secretary EDWARDS. This has been discussed on several occasions, and it has always presented a point for some heated discussion. But the draft legislation notes that only the State where the site is would have any input. I have always felt there should be some way for consultation with any States involved.

But you are going to have enough trouble getting the one State where you are going to put the repository on board. When you have other States intervening—where there may, but probably would not be, any danger whatsoever—it would be that much more difficult.

Mr. WYDEN. You are not at this time going to advocate a process involving the adjacent States; is that correct? I understand that you like the concept, and you have been a proponent of this kind of consultation process in the past. But given the fact that the draft does not have it now, you are not going to advocate any additional involvement for adjacent States? Is that your position?

Secretary EDWARDS. We have no plans for that, no.

Mr. WYDEN. Thank you.

Mr. OTTINGER. The gentleman from Iowa, Mr. Tauke.

Mr. **Tauke**. Thank you, Mr. Chairman.

Mr. Secretary, there are a number of legislative proposals that have floated around this Congress relating to this issue. Our subcommittee has before it a staff discussion draft of May 26. Have you had an opportunity to review that draft, and if you have, do you have any observations about it?

Secretary **Edwards**. Mr. Tauke, we have reviewed the draft. We have been in constant review of the draft for the last few weeks really, and I think it is a very sound document. It doesn't give us absolutely everything that we would like to have, but it is certainly something that we could support very nicely. I am excited about the possibilities and the cooperation with which all the principals have gotten together to create this draft. It has been heartwarming to me, because everybody seems to be saying we have talked about this long enough, now let's get on with the job and get it behind us. And it really is an inspiration to see it.

Mr. **Tauke**. I wouldn't want to throw a monkey wrench into the compromise effort that is underway, but I wonder if you have any observations about shortcomings in this draft, or if you think it really meets all of the basic requirements that the administration would have in mind for legislation.

Secretary **Edwards**. Could I refer that one to my legal counsel here and let him take a shot at that?

Mr. **Silverstrom**. You will recall, Congressman, that the staff discussion draft still has a number of areas, which are noted in brackets, left for resolution. We think we would have some suggestions about each of those items still to be resolved. We would be glad to suggest some specific words or approaches; but in general, we find the draft very acceptable.

One of the areas, for example, that has been discussed, and that the staff still leaves for resolution, is the precise steps in the NEPA process that would apply to the repository. Some of the funding aspects still need specific resolution; but overall, as the Secretary says, we do find it very admirable.

Mr. **Tauke**. I believe it would be helpful to the members of the subcommittee if you could submit any suggestions that you would have in those areas to us for the record.

Mr. **Silverstrom**. We certainly hope to do that, yes.

[Testimony resumes on p. 244.]

[The following information was received. The May 26, 1982, discussion draft referred to may be found in subcommittee files:]

THE SECRETARY OF ENERGY
WASHINGTON, D.C. 20585

June 15, 1982

Honorable Richard L. Ottinger
Chairman, Subcommittee on Energy
  Conservation and Power
Committee on Energy and Commerce
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

I appreciated the opportunity to testify before the Subcommittee on Energy Conservation and Power on June 8, 1982, relative to pending nuclear waste management legislation. Passage of an appropriate bill is of high national importance in regard to civilian nuclear power. The inclusion of defense waste management in a bill approved by your subcommittee, however, could jeopardize passage of this needed legislation for the civilian program. Lest there be any question about the Department of Energy's (DOE) preference on this matter, I wish to restate our position. In doing so, I will reaffirm the views expressed in the President's letter to Speaker O'Neill, dated April 28, 1982, that defense and commercial waste should be dealt with separately. For your convenience, I am enclosing a copy of that letter. Secretary Weinberger expressed similar views in his letter to Chairman Dingell dated May 28, 1982.

Defense waste management is an integral part of the nuclear materials and weapons production complex activities. Waste facilities must be operated in a practical manner so that materials are handled effectively and so that interruptions in operations are avoided. Combining defense and civilian waste in a bill could make pertinent defense operations subject to regulatory control by the Nuclear Regulatory Commission (NRC), an agency with no defense mission and with no special knowledge of nuclear weapons production needs. The Department maintains its own environment and safety oversight function in which full consideration is given to applicable requirements. Therefore, application of a new regulatory process could result in unnecessary production delays, duplication of effort, and high costs. Additionally, the adjudicatory process implicit in the regulatory process could jeopardize national security information relative to weapons and nuclear materials design and quantities.

A recent congressionally-mandated study (by NRC) concerning regulation of DOE facilities by the NRC indicated that regulation and licensing would not add to public health and safety and could significantly increase costs for both DOE and NRC. The excellent safety record of defense activities over 40 years speaks for itself.

We feel strongly that legislation should allow defense waste to be disposed of in a commercial repository, but not mandate it. The Department would exercise this option if it concludes that, in specific instances, national security would not be jeopardized. In such instances, it would deliver the waste involved to the repository site and pay any required fees. Delivered material would have to comply with the applicable NRC requirements for acceptance, but NRC would have no jurisdiction over or right to interfere with any defense-related activities pertaining to the delivered material.

By the year 2000, defense waste will contain only three percent of the total radioactivity in commercial and defense waste and only 0.1 percent of the long-lived radioactivity. As such, because repository size is directly related to the heat load produced by radioactivity, high-level defense waste will require only a small fraction of the area of the first repository. NRC has advised DOE that it is unable, at this time, to specify in detail the information they will need to verify that defense waste meets the NRC regulation 10 CFR 60. We cannot determine what, if any, national security impacts will result until that specification is made.

I will now address the issue of the acceptance of civilian spent fuel and transuranic waste by the Department. As I stated in my testimony, storage by DOE is only acceptable if it is an interim, last resort measure--not the long-term solution. Almost all DOE facilities capable of handling such material are supporting our national security programs. Such acceptance should not subject defense activities and facilities to NRC's regulations and licensing.

Finally, Public Law 97-90 (The Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1982) mandated a study of the Department's program to dispose of defense high-level and transuranic wastes at DOE sites and requires a plan for dealing with such wastes be submitted to Congress by June 30, 1983. Legislation on defense waste issues now would disregard both the current study and the impending plan.

This information should help to clarify the Department's position relative to coverage of defense waste in nuclear waste legislation this year. I urge you to approve a bill that excludes defense waste. There is no reason legislation cannot move quickly to solve the commercial nuclear waste problem without jeopardizing national security or adversely impacting the health and safety of the American people.

Please feel free to call if we can be of further assistance on this vital legislation.

Sincerely,

Jim

James B. Edwards

Enclosure

cc w/enclosure:
Honorable John D. Dingell
Honorable James T. Broyhill
Honorable Carlos J. Moorhead
✓Honorable Melvin Price
✓Honorable William L. Dickinson

THE WHITE HOUSE,
Washington, April 28, 1982.

Hon. THOMAS P. O'NEILL, Jr.,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: The safe and efficient disposal of nuclear waste is an issue of profound concern to all Americans. I am pleased and encouraged by the reports of bipartisan Congressional activity regarding nuclear waste legislation.

I, and all my Administration, stand ready to work with you to proceed on a bipartisan and timely basis on this most important matter, so that the Federal Government can fulfill its responsibilities for safe and efficient disposal of nuclear waste.

I believe that we all agree that first and foremost in any consideration of this issue is the fundamental need to protect the health and safety of all our citizens. We must also mitigate possible harm to our environment. With these prerequisites in mind, I urge early legislative action so that we may clear the way for continued development of peaceful uses of nuclear energy.

On October 8, 1981, I announced several policy initiatives regarding nuclear energy. My Administration is currently working to implement these initiatives. Consistent with these initiatives, and in order to take advantage of the inherent efficiency in the private sector (benefiting the electricity ratepayer in the long run), nuclear waste legislation should be adopted soon, containing the following elements:

(1) A system of user fees to fund the construction and operation of high-level nuclear waste storage and disposal facilities.

(2) An appropriate and effective method for State governments to participate in resolving site selection issues involved in the licensing and deployment of waste disposal facilities.

(3) A temporary storage facility, financed from user revenues, to relieve the near-term problem of exhaustion of spent fuel storage capacity at some operating plants. This facility should be subject to appropriate limitations on quantity of fuel and time of residence, perhaps 5–7 years, to ensure that it cannot be a substitute for longer term and permanent facilities.

(4) A federally owned and operated permanent repository for disposal of high-level radioactive waste to be available at the earliest practicable date. A federally owned and operated monitored retrievable storage (MRS) facility should be considered strongly for long-term storage in the interim period prior to operation of a permanent repository.

(5) Application to civilian-generated waste only, since military nuclear waste will be addressed separately.

To ensure efficiency and safety, nuclear waste legislation should require title transfer to the Federal Government, at a date certain, of vitrified high-level waste at the receiving facility. Alternatively, if vitrification facilities are not yet in operation, the Federal Government will take title to encapsulated spent fuel. This will fix responsibility and provide a firm basis for construction and operation of facilities for nuclear waste storage and disposal financed from user revenues.

These Federal actions are consistent with our basic effort to encourage private sector reprocessing in order to provide access to significant remaining fuel value for future generations as well as significantly reduce the volume of high-level waste.

The American people desire the safe disposal of nuclear waste. The necessary technology is available and scientific and engineering expertise exists to accomplish this goal. Federal legislation is required to assure a safe, effective solution for the disposal of nuclear waste at the earliest practicable time. I urge early consideration by both Houses of Congress and prompt enactment of legislation that will allow us to move ahead and deal with this issue in a timely and responsible manner.

Sincerely,

RONALD REAGAN.

Department of Energy
Washington, D.C. 20585

June 15, 1982

Honorable Thomas J. Tauke
House of Representatives
Washington, D.C. 20515

Dear Mr. Tauke:

This responds to your request for Department of Energy (DOE) observations on the May 26th Discussion Draft entitled the "Radioactive Waste Policy Act of 1982".

President Reagan's April 28, 1982 letter to Speaker O'Neill identified a number of elements which should be included in nuclear waste legislation: a system of user fees to fund the waste program; a procedure for State participation; a user-financed, temporary storage facility with a time limit for storage; a Federally owned and operated repository; and application of the legislation only to civilian-generated nuclear waste.

The May 26 Discussion Draft meets most of the above objectives. As Secretary Edwards indicated at the hearing, we believe the Draft provides a very sound basis for committee action, and appreciate this opportunity to offer specific comments. These suggestions are proposed as a means to meet the Administration's program objectives and reduce the likelihood of programmatic delays and associated cost increases.

Defense Waste

As noted above, the President's April 28 letter specifically urged that the present waste management legislation apply to civilian-generated waste only, and that military nuclear waste be addressed separately. In a May 28 letter to Congressman Dingell, Secretary of Defense Weinberger emphasized this point as well, urging Congress to pass a nuclear waste bill that will help commercial nuclear waste disposal without jeopardizing national defense and security. Concern that a bill that did not exclude defense waste would interfere with materials and weapons production has also led the Senate and House Armed Services Committees to insist on such separation.

In essence, these positions are based on the fact that defense waste management is an integral part of the nuclear materials and weapons production complex activities. Waste facilities must be operated in a practical manner so that materials are handled effectively and interruptions in operations are avoided. Combining defense and civilian waste in a bill could indirectly make pertinent defense operations subject to regulatory control by the Nuclear Regulatory Commission (NRC), an agency with no defense mission and with no special knowledge of nuclear weapons production needs.

Pursuant to Chairman Ottinger's request, we asked NRC about information it would require before defense wastes could be disposed of in a licensed commercial repository. In response, NRC advised us that it is unable at this time to specify in detail the information it will need to accept defense waste, i.e., to verify that this waste meets the NRC regulations in 10 CFR 60. We cannot determine precisely what, if any, national security impacts will result until that specification is made.

The Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1982 mandated a study of the Department's program to dispose of defense high-level and transuranic wastes at DOE sites, and requires that a plan for dealing with these wastes be submitted to Congress by June 30, 1983. We urge that the Congress not preempt this study and its recommendations by failing to exclude defense waste from the scope of civilian waste management legislation.

In the enclosed mark-up of the Discussion Draft, we propose specific language which would clearly limit the Draft's applicability. Secretary Edwards has also summarized our position regarding defense waste in a separate letter to Chairman Ottinger.

Nuclear Waste Disposal Fund

The Discussion Draft would establish a method of financing nuclear waste facilities, based on user fees to be paid by industry for services provided by the Government. We endorse this approach, as we do the borrowing authority also provided by this draft. There are, however, several potential refinements suggested in our enclosed mark-up that would enable DOE to manage its responsibilities more effectively.

Foremost among these is the use of a public enterprise type fund for nuclear waste disposal revenues and expenditures, rather than a special fund as presently envisioned. Under this arrangement, expenditures could be made directly from the fund without the need for annual appropriations, but would be within specific directives or limitations that may be provided by appropriations acts. We believe this approach would result in greater operating flexibility and a more businesslike management of the program, but would still provide necessary Congressional involvement and oversight.

State's Objections to Repository Siting

The Discussion Draft specifies that upon submission by the President to the Congress of a recommendation of a site for a repository, the Governor and legislature of the State in which the site is located may submit a petition to the Congress requesting that either House of Congress disapprove the site designation. We believe that a major national action such as turning down a repository site should require a more complete legislative process -- viz., a joint resolution requiring the approval of both Houses of Congress and signature by the President. This would preserve the prerogatives of the President and be consistent with the powers of the Executive under the Constitution.

Presidential Review of Site Recommendations

The Discussion Draft would involve the President in identifying candidate sites eligible for site characterization, as well as in approving sites for actual repository development. We believe Presidential involvement in the former step would be unnecessary and time consuming, with associated cost increases. General Presidential oversight could be maintained by requiring the Secretary to notify the President of the initiation of site characterization, after the Secretary has identified potential sites. The President's role in approving the site for actual development of a repository should be maintained.

NEPA Compliance

We understand that preliminary discussions among members of the subcommittee and the full committee have focused on avoiding the proliferation of Environmental Impact Statements (EIS) by requiring a single EIS to fulfill responsibilities under NEPA for the repository. Such a requirement indeed would do much to simplify the process while assuring that environmental considerations are fully integrated into the repository siting and development process. The Discussion Draft contains a number of provisions to implement this approach. Because of the uncertainty surrounding the number of different steps in the process which otherwise could present NEPA questions, our enclosed mark-up suggests adding a general clarifying provision that would accomplish this goal of a single EIS as well. In addition, we suggest some revisions to the language of the Discussion Draft to further ensure that the goal of a single EIS for the repository can be achieved.

Impacts of Process Required Prior to Initiation of Site Characterization on DOE Schedule

The Draft defines a series of steps which must be completed prior to the initiation of site characterization activities at each of the three candidate repository sites. The Department estimates that approximately 18 months will be required to complete these steps before it can begin to sink exploratory shafts at any candidate site, including the basalt and tuff formations at the Department's Hanford Reservation and the Nevada Test Site, respectively.

It should be noted that the Department has already completed the site identification process, has begun preparation for sinking exploratory shafts at these two sites, and will be ready to drill the first exploratory shafts early next year. Assuming that the Discussion Draft language were enacted by late this summer, however, DOE would be unable to begin the sinking of exploratory shafts until early to mid-1984. Such a delay would result in a considerable loss of momentum in the Department's efforts in exploring the acceptability of these sites for potential repository locations. Even more significantly, it would also decrease the amount of time available for site characterization.

Finally, we recommend that the overall process as applied to additional candidate sites be simplified to require only one set of public hearings and reviews prior to shaft sinking, instead of the two sequential hearings now required.

Interim Storage of Spent Fuel

The Discussion Draft would authorize the use of Federal facilities for interim storage of spent fuel. The Department has no objection to such use of Federal facilities for storage as long as it does not interfere with atomic energy defense activities, and does not subject such facilities to licensing or regulatory requirements under the Atomic Energy Act of 1954, as amended. The Discussion Draft contains provisions to accomplish this objective. We suggest some revisions to the language of the Draft to further ensure that this goal is met. Finally, the Draft provides for private, simplified licensing for on-site spent fuel storage, which we endorse.

Test and Evaluation Facility

The Draft is silent on the subject of a Test and Evaluation Facility (TEF), but DOE's program currently incorporates the TEF as an integral activity leading to a full scale licensed repository. Based upon the revised schedules being considered in this proposed waste management legislation, we will need to re-evaluate this requirement. The option to construct a TEF either at a repository site or at some other location should be maintained. Accordingly, we urge the Congress to consider DOE's needs in this area and provide language in the legislation to enable DOE to proceed with a TEF. We note that H.R. 5016, as reported by the House Committee on Science and Technology, includes such language.

Financial Arrangements for Commercial Low-Level Radioactive Waste Site Closure

The Draft would authorize the Department to assume title and custody of any closed commercial low-level waste disposal facility. This provision is acceptable if an adequate extended care fund were transferred to the Department for use in site maintenance and care so that there would be no cost to the Federal Government. Further, this provision should be modified to provide for DOE's concurrence with the Nuclear Regulatory Commission's determination of adequacy of site closure, decommissioning and decontamination before title transfer to assure that the closed commercial sites have met DOE's technical requirements.

Thank you for requesting our observations on the May 26, 1982 nuclear waste management Draft. We again applaud the cooperative efforts which have resulted in this commendable effort. We stand prepared to assist the committee in any way we can to further legislation on this vital matter.

Sincerely,

Rob Odle

Robert C. Odle, Jr.
Assistant Secretary for
Congressional, Intergovernmental
and Public Affairs

Mr. **Tauke**. Mr. Secretary, in your opinion why have the private utilities not built their own offsite spent fuel storage facilities?

Secretary **Edwards**. I think it is a combination of several things. You know the Federal Government has been charged with the ultimate disposal of nuclear waste, and the utilities have been waiting for the Federal Government to dispose of the nuclear waste. They felt that the next year they are going to get a bill and the burial of the waste would proceed. That would save that tremendous investment of capital.

The facilities would have to be licensed, and the licensing process, as you know, is long and involved. Public opinion would be certainly something to take into consideration. So the utilities were just hoping not for justice but for mercy at this stage, and hoping that the Federal Government would fulfill its responsibility to take care of the permanent disposal of nuclear waste.

So I guess that it is this combination of reasons why they have not moved ahead in that area.

Mr. **Tauke**. You support the privately financed nuclear waste fund proposed in that discussion draft that we referred to earlier. Do you propose putting that off budget? Do you support putting it off budget and exempting it from the annual appropriation process?

Secretary **Edwards**. Yes, I would like to see it off budget, in a public enterprise fund with appropriate control and guidance by the appropriations process. I think the nuclear waste fund would be much more businesslike and could be handled in a much more effective and efficient way. I don't want these funds to be used in some other area of Government than for what they are earmarked.

Mr. **Tauke**. So you would rather have it off budget and not involved in that annual budget——

Secretary **Edwards**. Yes.

Mr. **Tauke**. And appropriations process?

Do you support a requirement that the DOE annually file a certified financial statement on the use of the fund with the relevant committees of Congress?

Secretary **Edwards**. Yes, I do.

Mr. **Tauke**. Thank you very much, Mr. Secretary.

Thank you, Mr. Chairman.

Mr. **Ottinger**. We will hear next from the gentleman from Illinois, Mr. Corcoran.

Mr. **Corcoran**. Thank you, Mr. Chairman.

First of all, Mr. Secretary, let me say that I am happy to see you here on this occasion.

Second, I want to commend you for your effort in what would appear at least from news account reports to be as a "last hurrah" on your part, and that is to make sure that we correct part of the unfinished business of the Congress and the people of this country and finally develop a sensible program on nuclear waste management.

Mr. Secretary, the first question I have deals with the permanent repository itself, and as you know, in the May 26 discussion draft, the two major issues that are covered are the question of a workable, practical procedure for ultimately getting an operating repository, and second, dealing with the accumulating problem of the surplus spent nuclear fuel.

First of all, with respect to the former, there are varying dates as to when the site selection would have to be made, but in the Senate-passed version and in other versions of previous years, the date has been January 1, 1986. Do you think that is a workable, practical date at this point in time for the selection to be made of the first repository?

Secretary EDWARDS. Yes, I do think it is. I would like it to be no later than that. I hope you won't put any restrictions on it. If we could push it ahead even a year, then we might be able to make that site selection a little earlier than that. But definitely I think we can make that by 1986.

Mr. CORCORAN. Will that time period enable you to canvass all of the potential sites? As you heard from our first witness, there was a concern that maybe only a couple of States would be examined. There was also the concern by a colleague of mine that maybe Illinois ought to be included in that review process, and I think as a matter of fairness we want every State to be examined. In this procedure, will every State be examined as the legislation now stands?

Secretary EDWARDS. Mr. Corcoran, you would think that we are talking about just beginning to examine these potential sites when this bill is passed, but we have been looking at potential sites for the last 20 or 30 years, so we have a multitude of sites that we have looked at all over the country. I am sure there are some in Illinois that have been looked at. We will look at them again if you would like.

Mr. CORCORAN. Look at them carefully, Mr. Secretary.

Secretary EDWARDS. We have sites in my State of South Carolina that they are looking at in granite. The country has a variety of sites. We will look at every site possible. When you ask me if we have looked at every potential site in the country, I could not answer that in the affirmative, because I am sure there are many more potential sites than we even know about at this stage. Basically, we have done a very thorough and complete study of potential sites. We have narrowed them down to four different geological formations, all of them appropriate. I think that we can find an appropriate site and start burying in the first one. I think we should not have the second one in the same area as the first. I think it should be in a different area.

Mr. CORCORAN. With the timetable we are discussing here of January 1, 1986, you are not going to be restricted, you are not going to be compressed in any way with respect to the breadth of your evaluation?

Secretary EDWARDS. Not at all.

Mr. CORCORAN. Second, Mr. Secretary, I would like to raise a question about the management of the process itself. As you have expressed, and certainly others have expressed, both this morning and on other occasions, we have not been able to get to the point where we would have an operating repository for many, many years for a variety of reasons, reversal in Federal policy and other factors, and I am wondering whether or not in the legislation that is before us, particularly in terms of the discussion draft of May 26, the Department of Energy will be able to manage the process adequately.

As you know, the proposal is that from the very beginning the financing of the program would be borne by the utilities, and of course ultimately the ratepayers, on the basis, as you express it, of a user fee proposal. In that respect, do you think that, in terms of management of the process, there ought to be some involvement, perhaps on an advisory basis, of private interests as well as the Department of Energy in this whole matter?

Secretary **Edwards**. What you are saying, some of the utility representatives sit in a board to manage these funds? I really had not given much thought along that line. I certainly see no objection. I have no objection to it. I think it would add something to the management, possibly. I have been so eager to get this project going, and I think we have the potential to manage it adequately with proper oversight and evaluation, but it would not hurt to have some good executives from the private sector sit in on projects like this. I would not object to it.

Mr. **Corcoran**. You have been at the Department now for I guess 1 or 2 years, and you have had some experience, of course, outside of that responsibility, and we have had this difficulty of trying to resolve the question. I guess my real concern is where has the bottleneck been? Why have we delayed in this whole process, and are you convinced that the Department of Energy or its successor agency with respect to this kind of program has the total commitment to move ahead and to make certain that site selection would take place by January 1, 1986, and hopefully sometime before the beginning of the next century, we would actually have an operating permanent repository?

Secretary **Edwards**. I think that the Department right now is dedicated to finding answers, and to building a repository. I think this subject has been studied about as thoroughly as any subject could possibly be studied. If you just study a subject, you are always assured of a job for many, many years. If you do not look for solutions and create solutions, and finally bring the project to fruition, you have always got a job. There may have been some of that in the past. I hope there is no more of that present now. If we see it, we will correct it under the rules and regulations that will allow us to correct such situations.

Mr. **Ottinger**. The time of the gentleman has expired.

Mr. **Corcoran**. Mr. Chairman, I wonder if I could ask unanimous consent for 1 additional minute.

Mr. **Ottinger**. Without objection.

Mr. **Corcoran**. Thank you, Mr. Chairman.

I thank my colleagues for their indulgence. I just have one parochial matter I want to address, and that is interim storage. Mr. Secretary, as you know, the bill H.R. 3809, which has been reported by the House Interior Committee, has compromise language dealing with the question of interim storage, and I just wonder what your position is on that particular section of that bill.

Secretary **Edwards**. I am assuming that you are talking about the limitation on tonnage and the time duration.

Mr. Corcoran. Those are, Mr. Secretary, factors, but there are also some other considerations. One, that it would be a last resort emergency temporary storage program.

Secretary Edwards. Yes, we would like to insist on that, that it be a last resort determination, that they are going to have to close down if they do not find some interim storage.

Mr. Corcoran. And that there would be the options of storing the spent nuclear fuel that might be surplus at either of two or three places such as, for instance, the site of the permanent repository after it has been licensed, or at some existing Federal facility, which has already been involved in the storage of waste, particularly as a result of its responsibility with the weapons program?

Secretary Edwards. Yes.

Mr. Corcoran. Thank you very much, Mr. Chairman.

Mr. Ottinger. Mr. Whittaker.

Mr. Whittaker. Thank you, Mr. Chairman. I too would like to add my welcome to the Secretary for taking of his time and his commitment and energies dedicated to trying to resolve this problem that has literally plagued not only the industry but the country for probably one-and-a-half, possibly even two decades. In all due fairness, Mr. Chairman, with the last unanimous consent we granted to my colleague from Illinois, he completed the last question that I had unresolved, so I have no questions.

Mr. Ottinger. All right. I am sure the gentleman from Massachusetts has some quesions. Mr. Markey.

Mr. Markey. Thank you, Mr. Chairman.

On the question of the role that the States will play in determining whether or not a site should be placed in their State, let me run through my understanding of the way in which your proposal would work. The DOE will recommend a site to the President. The President then chooses the site. The State objects. Then both Houses of Congress and the President, the man who recommended the site, will have to agree with the State's objection. What do you think the likelihood is, Mr. Secretary, that the President who selected a particular State is going to agree with the State that they should not be the repository for all of the nuclear waste in America?

Secretary Edwards. Mr. Markey, if you had an open-minded President, I think that after he had heard the debate in the Congress——

Mr. Markey. Let us not deal in hypotheticals now.

Secretary Edwards. I think that he would take a look at it. We could live with one House sustaining the State's objection rather than the two Houses and the President, but of course we want to make it as difficult as possible. Once work has gone into the selection, we determine the selection, and the State has been on board from early on and helped with the direction of the programs from the day we went into the State, if at that stage the State vetoes the selection then I think it should be as difficult as possible for them to veto it. Any State that is selected, we certainly realize, is going to have the tendency to try to get out from under the responsibility.

Mr. Markey. You said that you would not object to having a one-House veto in which the State would object, and then one House would have to overturn the State decision? Would that be an acceptable position to you? In other words, shifting the burden of proof to the DOE rather than to the State. Why should the State be put in the position in which it has to override a decision made by the bureaucracy rather than making the bureaucracy have to justify their decision to the Congress? That way the State is not put in the position of having a bureaucratic decision be imposed upon the individual States?

Secretary **Edwards**. The executive branch has always felt that we needed a two-House veto because of the constitutional aspects. I would like to call on my legal counsel, Mr. Silverstrom, here to comment on that aspect of it.

Mr. **Silverstrom**. As I am sure the Congressman is aware, the executive branch has generally taken the position that for constitutional reasons there is a problem with one-House vetoes. Therefore, applying that general principle to this situation, obviously the executive branch thinks that, especially for something of such importance, the right procedure would be a two-House joint resolution signed by the President.

I guess starting from that premise——

Mr. **Markey**. Just let me say the premise that I work from is that it is a two-House veto, but that veto is used to overturn the State objection rather than to sustain it. This difference is important so it still satisfies the constitutional requirement that was recently mandated in a Federal court decision.

Mr. **Silverstrom**. Yes.

Mr. **Markey**. It is just now a question of looking at the burden of proof. We are looking at whether or not the State is given a meaningful role in this decision.

Mr. **Silverstrom**. Yes; there I think you have to revert back to the Secretary's earlier comments about the burden that this would place on a Governor or a State or county commission, to leave this decision totally to that level of government. If you start with the Secretary's premise, the importance on this issue, a national issue, of having a national decision—and you accept the notion of a State veto of some type in the form of an objection to Congress—then the real question is how do you resolve the State objection with the Federal role, and the Federal role can only be done, as you say, by joint resolution. If you start with all of those, then, as I say, the staff discussion draft comes closest. After that H.R. 3809 as reported by the Interior Committee probably would be closer, and you come further and further from the position of making it a Federal decision. It is that simple.

Mr. **Markey**. The question here, though, is what type of role you want the States to play. I am a States righter, and I genuinely believe that they ought to have a role. I am concerned especially with a process that will fundamentally alter the character of a large portion of the State that this particular repository is located in.

My concern, Mr. Secretary, is that we do agree on the issue of the need to find a terminal, a permanent repository for nuclear waste, and we do agree as well that environmental safety-health considerations have to be made paramount. I think where the disagreement arises is over the secondary issues, the issues of the away-from-reactor storage and the question of monitored retrievable storage. There are very serious questions as to the need for away-from-reactor storage.

I would ask you, Mr. Secretary——

Mr. OTTINGER. The time of the gentleman has expired. I will have another round, but in fairness to the other members I will have to cut the gentleman off at this point and turn to Mr. Swift.

Mr. SWIFT. Thank you, Mr. Chairman.

There is reason to believe that the States have something less than total confidence in the Department of Energy, and I would hasten to add that is not something that began when you took over leadership of the agency.

Secretary EDWARDS. Thank you, Mr. Swift.

Mr. SWIFT. It is very long-standing. But it does seem to me that that is a critical observation, and to not debate here whether there is lots of justification or very little justification for the perception, I think there is some general feeling that in fact it is a perception, and moving into something that is going to be as controversial as this to begin with, it seems to me that the process by which the site selection is made must have as much credibility as we can possibly build into it.

Second, it is essentially a highly technical decision. I was wondering if you would comment on the idea that at an initial stage of evaluation of the sites that would be considered, that an independent commission made up of acknowledged experts in the various technologies necessary be used to make the initial evaluation and recommendations either to DOE or to the President, probably to DOE, and then on, in order to give some political isolation, some independence from DOE, to bring in people who you can less likely accuse of having a bias or predetermined judgments from having massaged this material for so many years and so forth, would that not go a really long ways in bringing a credibility to the whole process, and in fact kind of getting DOE off the hook a bit in terms of that aspect?

Secretary EDWARDS. Mr. Swift, it sounds very good, and I certainly would not object to some panel of experts doing some oversight of the project, but we have had really top-notch scientists working on this program for many, many years. We have not only the Department of Energy, but the U.S. Geological Survey then reviews our investigation, and they have signoff on the geological aspects of the selection. We have done just about everything to insure that the health and safety and welfare of the American people are taken into consideration as we move ahead. I would not object to a panel such as that.

We have got some of the finest experts right here in government that have been working on it. We know what the potential problems are to site characterization. There will be consultants called in. I am sure that Mr. Brewer, Assistant Secretary for Nuclear Energy, would like to comment on the consultants that we have.

We have a whole group of people that we call in just about at every turn.

Mr. SWIFT. I don't doubt any of that, Mr. Secretary, but I think you are also kind of making at least a part of my point, which is that when you have people who have been working with this issue for years, I think people are going to conclude, not irrationally, that these people have got their minds made up.

Now, if you are going to go through a process of site selection, in which people presume that it is all "dumb show," in the Shakespearian sense, and that really the decision has been made but we are going to go through this process and then come up with who we had in the barrel in the first instance, you lose the credibility I am talking about, and the very fact that obviously these people are experts, but they have been massaging this material for an awfully long time, and I would be damned surprised if they each don't have their favorite candidate by this time. Wouldn't you?

Secretary **Edwards**. I would be disappointed if they didn't, Mr. Swift.

Mr. **Swift**. My point exactly. Thank you, Mr. Secretary.

I yield back the balance of my time.

Secretary **Edwards**. After many years of working on this project, I really would be disappointed if each one of them didn't have two or three of their favorite locations. Maybe we could ask Mr. Roser; he has been working on similar projects. He is in the weapons part of it, but he has been addressing himself to some of the problems here.

Herm, why don't you comment on that situation?

Mr. **Roser**. Mr. Swift, I think your suggestion is probably a very valid one. I would hope that we could have a process of site selection that could be expedited, but I certainly would see no objection to an oversight, if it could be done in an expeditious manner, just to simply validate the judgments that have been made by the people who have been working on it for a number of years.

I tend to see a bit of difficulty finding enough people who don't have a personal interest in the subject to be sure that any group of people together in this country would be totally unbiased. This is a very controversial issue, but I believe that we have studied it to the point where any selection that is made on the basis of data that is currently available could be well defended, both to the Congress and to the general public.

Mr. **Swift**. I thank you for your comments.

Secretary **Edwards**. May we get Assistant Secretary Brewer to give his ideas on it too?

Mr. **Brewer**. Mr. Swift, I would like to point out that over the years, there has been a veritable proliferation of panels and review teams. There are so many institutions, government and otherwise, involved in this problem, we have the State governments, we have the Nuclear Regulatory Commission, we have the Department of Energy, we have I don't know how many task forces within the Department of Energy which have, over the years, looked at this.

During the past administration we had something called the Interagency Review Group. There has been oversight and overkill.

Mr. **Swift**. I understand that, and I am not suggesting in any way that you haven't been thorough. I mean, I am not suggesting that at all. I would assert to the contrary. What I am suggesting is you are going to deal with the perception problem here.

It is essentially a PR problem, and all of that that has gone before isn't going to really be worth very much in trying to assure the people who suddenly find that you are going to put some radioactive stuff in their backyard, that they have had every opportunity to present their case, because they may not even have been paying attention until about 3 months before you start doing it.

I am saying you need something, we need something, and they need something, that at that time assures them that there is credibility to this process, and running them through a previous 8 years of work isn't going to do it in my judgment.

That is the point that I am making.

Mr. OTTINGER. The time of the gentleman has expired. The Chair will recognize himself for 5 minutes.

Let me say first that I have some concern because the President is going to appoint whatever independent body you have to review this. Even if we specify that there have to be certain types of groups such as environmentalists on it, he is likely to appoint Secretary Watt. I am not sure how much assurance that really gives us.

I would like to go over with you, Mr. Secretary, some of the discussions so as to get them on record with respect to some of the controversial subjects here. We would like to insure that in examining the sites, certain information is gathered before we go in to select specific sites.

The Senate has a provision for a national survey of sites. It then problematically provides for the selection of sites before the national survey is completed. This doesn't seem to be sound.

Do you have any problem with our request that the essential information needed to select these sites be specified in the legislation, and that the data therefore be expandable for the selection of the site contingent upon that information actually having been developed?

Secretary EDWARDS. We have no problem with that, Mr. Chairman.

Mr. OTTINGER. On characterization, there is in the Udall bill a provision for an environmental assessment rather than a full NEPA statement. Do you have any problem with our asking the department, with respect to matters in controversy in that assessment, that specific determinations be made?

There is no specification as to what goes in that assessment at the present time or what happens with it. What we would like you to do is to address the problems that are raised and reach a conclusion and give your reasons for it.

Secretary EDWARDS. Could I ask Dr. Brewer to respond to that? He has been closer to that aspect than I have, Mr. Chairman.

Mr. BREWER. Mr. Chairman, the current draft of the legislation that we have reviewed in the past several days—I think it is dated May 26—coincides with our NEPA process, which is an environmental assessment prior to the sinking of a shaft, and a complete environmental impact statement before the selection of the single site for developing into a full-scale repository.

Mr. OTTINGER. Our problem, in what we are trying to work out with the minority, is to make sure that the environmental concerns that may be raised in connection with site characterization will in fact be addressed. There is provision for an assessment but it doesn't say what you have to do or what you do with it.

What we are discussing is a requirement that the problems that are raised be addressed, and that the reasoning of the department proceeding in the face of environmental problems—and there are sure to be environmental problems—be set forth.

Mr. **Brewer**. Mr. Chairman, I think if you specify the factors to be considered at the EA stage in the legislation itself, we would like to review that and see if we can do that within the scope and time schedule laid out in this piece of legislation.

Mr. **Ottinger**. My proposal is not to provide for any delay, but to provide for some assurance. I hope you can stay, incidentally. One of the things I wanted to ask today, we have the States coming in the next panel, and they are raising some concerns that they have had in dealings with the Department. I wonder if you could stay to respond to those concerns, in fairness to you, the Secretary, or both of you.

Mr. **Brewer**. I would be happy to, Mr. Chairman.

Mr. **Ottinger**. What goes on in characterization?

Mr. **Brewer**. In the characterization stage, Mr. Chairman, we characterize the thermal and hydraulic character of the geology of the site, the seismic character, the environmental character above ground, and as much as we can below ground. Specifically, bore holes are driven. A major shaft is sunk. Experiments are performed at depth.

Mr. **Ottinger**. And there is a provision in the characterization for the possible insertion of the minimal amount of nuclear materials necessary to test?

Mr. **Brewer**. Yes, sir. In your draft legislation dated May 26, there is a stricture on the amount of test radioactive material that can be in place during the characterization phase.

Mr. **Ottinger**. The time of the chairman has expired. Are there further questions from Mr. Corcoran? Mr. Wyden? Let me ask a few more, then.

In the NEPA process, our tentative agreement, reflected in the draft, which minority is expressing some concern about, is in connection with the final repository. We request that a full EIS be prepared by the Department in consultation with the NRC, before a final recommendation is made.

During the licensing process, once a site has been tentatively selected, that the NRC not be precluded from NEPA consideration. If there is a need at that juncture, which would be sometime later, for supplementation of the DOE EIS, that they would be empowered to have that additional information developed. Is that satisfactory to you?

Secretary **Edwards**. Mr. Silverstrom.

Mr. **Silverstrom**. I think there is under discussion the possibility of making sure that duplication in the NEPA process be avoided. One idea that has been suggested at the particular step you are referring to, Congressman, is that the EIS that had been prepared be used as part of the NRC's review. Especially since the NRC would have been involved in discussing the scope of that statement. In essence it would have been in many ways a joint statement. That statement in turn would be used in the NRC licensing proceeding.

Mr. **Ottinger**. That is not at issue. We agree that there ought to be no duplication; is that right? Our problem is that the licensing and the original selection and recommendation by the President of the site are going to take place at different times after some time and additional information is available, and we do not want to preclude the NRC from developing additional information that wasn't covered in the original EIS In connection with this proceeding, if it appears to the NRC that that is necessary. Is there any problem with that?

Mr. SILVERSTROM. I think a suggestion could be made along the same line. To the extent supplementation is necessary, that that as well be a joint effort or the same lead agency concept; namely, DOE with NRC involvement. Obviously, to the extent supplementation becomes necessary as part of a licensing proceeding, it is going to have to be done by somebody.

But I think it is important, if indeed the premise is to avoid duplication specifically of NEPA statements, that the process not require supplementation simply because of the passage of time or a new issue being raised.

Mr. OTTINGER. It is that last point that you make that gives me concern, a new issue being raised. I have no problem with avoiding duplication.

Mr. SILVERSTROM. When I say new issue——

Mr. OTTINGER. I do have a problem with respect to matters that may come up subsequently. I will give you a specific example that triggers my concern: The Department has been using and developing the WIPP site, and the State expressed concern with respect to the WIPP site, that the borings were not deep enough. Deeper borings were then made, and water was discovered.

It seems to me that allowance ought to be made for that kind of consideration. When problems are brought up, that were not in fact explored initially, that the NRC be given the opportunity to require additional exploration. With the permanent repository, if you hit water, you are in trouble, as was indicated in Lyons, Kans.

To preclude that arbitrarily seems to me to be a very unwise decision.

Mr. SILVERSTROM. Yes; I think one can make the distinction between precluding a substantive issue and requiring a new NEPA document. Let's take the new information that might have come out of the drilling: Obviously that new information needs to be considered by the NRC in its environmental review. One can question, however, whether that new information needs to trigger a new NEPA statement.

The only distinction I am making is not whether NRC should consider that information, but the possibility of not requiring yet a further supplementation of a NEPA document. NRC's review needs to be total, but that isn't the same as triggering yet another NEPA statement.

Mr. OTTINGER. We are not talking about triggering. I don't propose starting over again from scratch. What I am proposing is that if additional concerns deemed by the NRC to be substantive enough to be worthy of exploration are brought up, that they not be precluded.

Secretary EDWARDS. Mr. Chairman, I think good, sound judgment would dictate that anything of significance that comes up should be considered by all parties concerned, so we have no differences there, Mr. Chairman.

Mr. ROSER. As an aside, Mr. Chairman, we certainly are looking at that brine pocket that was developed as a part of WIPP. We are at WIPP, of course, in the site preliminary design and verification stage, so that along with any other data that are developed as a part of that will be considered before any final construction is done.

Mr. OTTINGER. On the AFR, you have testified that an AFR of any kind ought to be a last resort. We have proposed and discussed with you that the NRC make that determination rather than the DOE. Do you have problems with that?

Secretary EDWARDS. We would prefer the DOE to make that determination, just from past history. But I think we could work out some compromise on that, Mr. Chairman. I don't think that is significant enough to hold up the markup of the bill and the passage of the bill. We would like for DOE to make that determination, if at all possible.

Mr. OTTINGER. That is your preference, but you don't have problems with a bill that has the NRC In it?

Secretary EDWARDS. Mr. Chairman, we could live with it, if you want to put that in the bill.

Mr. OTTINGER. Our problem is that DOE has been very much an advocate of moving forward. We are concerned, as indeed the whole rationale for the NRC being set up in the first place, that the advocate not make some of the critical decisions that are involved, and that there be an impartial determination.

There is tremendous industry pressure to have an AFR in the bill. If you agree it ought to be a last resort. We think that having two actors on that scene would give greater assurance to the public that an AFR would not be established unnecessarily. There are some members of the committee in the House that are very concerned about any provision for an AFR.

Secretary EDWARDS. Yes.

Mr. OTTINGER. As you know, in order to get this through the Rules Committee in particular, we must provide all the protections that we can for both substantive and political reasons. Therefore I want to make sure that we get a clear answer from you on this. You don't have an objection to a bill that has the NRC making that decision through formal procedures?

Mr. SILVERSTROM. There again, one might make a distinction, Mr. Chairman. I think there certainly would be no question that NRC is an important actor in deciding whether there is a need. On the other hand, if one looks at the question of using a DOE facility, which has been discussed before, there the NRC role at best I would suggest is——

Mr. OTTINGER. All we are asking the NRC to do is to make the very difficult determination whether there really is a need for an AFR or not.

Mr. SILVERSTROM. The need certification.

Mr. OTTINGER. Not determining which site is to be used except insofar as the licensing of the site may be required, and that is another issue that we will have to get to.

Secretary **EDWARDS**. Mr. Chairman, if that is what it takes to get it past the Rules Committee, we can live with it.

Mr. **OTTINGER**. Now with respect to acceleration of the procedures for onsite storage. We have agreed that if we are going to make it very difficult to create an AFR, that there ought to be some kind of accelerated procedure for being able to expand on site.

Secretary **EDWARDS**. Yes.

Mr. **OTTINGER**. And here Mr. Broyhill, who has joined us, and I are in some disagreement, the May 26 draft reflects that. Is the Udall language acceptable to the department in terms of the acceleration of an onsite procedure? What is the attitude of the department toward the minority's suggestion that there be, as is in the Senate language, an accelerated procedure that involves a scoping, first, of the issues and then restrictions of the issues to those which are decided upon by the NRC. And then, second, an interim licensing procedure.

Mr. **BREWER**. Mr. Chairman, we have got several versions of these various bills. Could we examine them further?

Mr. **OTTINGER**. Yes.

Mr. **BREWER**. We are looking at H.R. 3809 and the May 26 draft.

Mr. **OTTINGER**. The Udall bill provides that there will be an accelerated procedure. There will be a licensing procedure for expansion of onsite storage, which excludes some of the basic issues such as the need for power, the need for onsite storage, and certain other matters. That is more acceptable from my standpoint.

The gentleman from North Carolina can certainly participate at this point if we wants to and provide his own justification. He has proposed that we adopt the Senate procedure, which calls for a two-stage process of scoping issues, and for interim licensing with respect to the accelerated onsite procedure. I have grave reservations about that. I don't think it is really needed, because all we are talking about is either adopting casks, which by that time will be licensed, or adding additional swimming pools to put storage in, or different racking procedures on existing pools.

I am concerned that these accelerated procedures and interim licensing not be used as a precedent to say it looks fine here in this limited situation, so we can use it in other things. That is an issue that we have to resolve between ourselves, and we would like to know how the department stands on it.

Mr. **SILVERSTROM**. My recollection is, Congressman, that 3809 has a two-stage process contemplated as well. It is only the degree of acceleration that I think we are really talking about, and there it might be worthwhile just to see specific language.

Mr. **OTTINGER**. Is there a need for a two-step procedure at all?

Mr. **SILVERSTROM**. It certainly is a suggestion, another way to accelerate and expedite, and I guess it is ultimately going to have to be the Congress choice as to how much.

Mr. **OTTINGER**. So you are not taking a position on that issue. What about interim licensing?

Mr. **SILVERSTROM**. The interim licensing would be extremely important, because it is during that period that you would be going through whatever process the Congress finally defines. But the importance is to take care of that interim period, whether it is the 2-

year period or some other. The interim license, I think, would be even more important than the expedition.

Mr. **OTTINGER**. Mr. Broyhill, why don't we recognize you?

Mr. **BROYHILL**. If the gentleman would yield at this point, it was my understanding that the chairman of the subcommittee and I had made some tentative agreements at least that an expedited consideration of onsite storage capacity would lessen the pressures for an AFR.

Mr. **OTTINGER**. The gentleman is correct. The question is, How far do you have to go?

Mr. **BROYHILL**. Of course, my concern is that if you make it too difficult to get expansion of onsite storage capacity, then you are going to revive the pressures for the construction of an AFR. I think it's as simple as that.

Mr. **OTTINGER**. What I am seeking wisdom on, I am perfectly willing to go along with excluding the issues that have already been determined, or that aren't relevant to expansion of onsite facilities for public health and safety. I am concerned about excluding the public from that process, and I am concerned about using an interim license here to again exclude the public, which presumably any interim licensing as we have provided in the NRC bill with might support——

Mr. **BROYHILL**. Would the gentleman yield at that point?

Mr. **OTTINGER** [continuing]. Requires health and safety determinations to be made first. The question is, Can you issue an interim licensing before the public has had a full opportunity to be heard? This does concern me.

Yes, I yield.

Mr. **BROYHILL**. The Chairman of the NRC has been aware of this issue and, it is my understanding, has endorsed an expedited procedure that is contained in the Senate bill, and testified before the Senate Environment Committee with respect to the language in that bill, and endorsed that expedited procedure that is provided for in that language.

We are really talking about a hearing process that narrows the scope of the issue so that you are not having a full-blown hearing, and not triggering the full-blown formal procedures with respect to all issues. It seems to me that many of these issues need not be raised again, or if a number of parties are arguing the same part, the same issues, they could be consolidated in some way so as to give adequate consideration to those issues in the hearing, in an expedited procedure.

Mr. **SILVERSTROM**. Just to amplify that slightly, sir, it might be important to make clear exactly what we are talking about in the hybrid type of proceeding. What would be contemplated is, first, a nonadjudicatory, legislative type, hearing that would serve as a mechanism for identifying a specific issue which the NRC then decided warrants a full adjudicatory proceeding.

To the extent there are such issues, a full-blown adjudicatory proceeding would not be precluded, would not be foreclosed. It is just an interim filter, if you will, to make sure that only those issues that genuinely deserve to go to an adjudicatory forum go to that forum.

Mr. OTTINGER. But even that could be short circuited, if an interim licensing procedure is also added, so you could effectively preclude the adjudicatory type procedure. Once the NRC determines for itself that there are no health and safety problems, then they have the hearing process with the public excluded, prior to the making of the interim licensing decision. So it is the combination of those two processes that can be used to exclude the public from effective participation that really gives me a good deal of concern.

It probably will be an area on which we will just have to let the committee decide. What I want is the wisdom of the Department with respect to that matter.

Secretary EDWARDS. Mr. Chairman, I think that anything that you and the Congressman from North Carolina can work out would be satisfactory with us. I do think that there is a problem, and if we could make onsite expansion easier, I think we could move ahead and keep down the demand for interim storage and the added expenditure. It is not as though you are starting a whole new operation on these sites, as you know.

It is just to build an additional swimming pool there to put these spent fuel rods in, and in the meantime, as I understand it, there would be a temporary license granted. I thought that was the agreement that had been reached. There be a temporary license granted for that 2 years and in those 2 years the NRC would go through the licensing project but we could start construction and move ahead in the meantime.

Mr. OTTINGER. The gentleman from North Carolina and his staff assume that is what we had agreed to. I had agreed to an accelerated procedure, but not to the Senate procedure. I have some concerns about the Senate procedure today, so we wanted your advice on that.

Now, over the weekend I met with some people from the Council on Economic Priorities. They just finished a very extensive study of the waste procedure, which I trust you are familiar with, and they suggested as a substitute for an AFR, that the Federal Government might maintain—all of this of course at industry expense—dry storage casks sufficient to be able to allow full core unloading. Maybe one or more arrays of these casks, assuming that they will be licensed under the generic licensing procedures that are provided in the draft bill, and that will be done with expedition, assuming that they are licensed.

I would like to get your reaction to that. It seems like a rather good solution that would prevent having to ship the material to some central place. Assuming that the dry storage procedure is indeed an acceptable one, it would seem to alleviate some of the pressures that are being put on us, particularly by some of the utilities in the gentleman from North Carolina's areas.

Mr. BREWER. Yes, Mr. Chairman, as an interim emergency stopgap measure, I think it is a valid idea. As you know, we do have underway a demonstration with the Tennessee Valley Authority on dry storage in a modular fashion. The idea has a lot of technical merit, and we will at some point, of course, face the generic licensing issue that you alluded to.

Mr. OTTINGER. I would recognize the gentleman from North Carolina if he wants to ask any questions at this point.

Mr. **Broyhill**. No, I don't have any other questions. This is the area in which I wanted to comment, and I think that our colloquy and the discussion with the Secretary have brought out the facts, and also have tended to sharpen the issue there. So we will just debate—there is no need to continue to debate this in the hearing—we will continue to debate this as we work toward markup.

Mr. **Ottinger**. Mr. Markey, do you have any questions?

Mr. **Markey**. Thank you, Mr. Chairman.

The Senate bill and Mr. Udall's bill has a monitored retrievable storage component in it. Do you support that?

Secretary **Edwards**. Mr. Markey, we would support the monitored retrieval storage. Once again, it is one of those interim storage situations.

I often think that if I were spending my own money on this project—that is the way I usually like to look upon expenditures of Federal funds—that I would take the money that we could put in monitored retrievable storage and dedicate that to accelerating and building the permanent storage.

As you know, under the proposed regulations, any permanent storage has to be in a monitored retrievable form for 50 years, and so the permanent repository is a monitored retrievable storage so far as I am concerned.

Once again, if you are going to look upon that as a postponement of the final repository, let's don't do it. If you are going to look upon it as answering an absolute need, then I would go along with it.

Mr. **Markey**. Estimates are that the costs will run from $775 million to $3.8 billion for a monitored retrievable storage site, and it seems to me that there is only a limited amount of resources available for this kind of a project, that is, the permanent disposal of nuclear waste. And if we are going to commit several billions of dollars to the temporary solution, it would seem to me that it would, because of its 50-year lifespan, perhaps serve as a detour away from finding a permanent solution. Would you not think so?

Secretary **Edwards**. Mr. Markey, spoken like a true conservative, I would say. I would have to agree with you.

Mr. **Markey**. You would have to agree with that. Thank you.

Mr. **Ottinger**. Would the gentleman yield?

You support a bill that does not have a provision for monitored retrievable storage in it?

Secretary **Edwards**. Yes.

Mr. **Markey**. Thank you. The witnesses that will follow you today are expected to testify that the DOE has skirted issues of importance to the States, has withheld information from the States, and has been consistently uncooperative in responding to State concerns.

I have been told that DOE has told some State officials that they are not entitled to vital information necessary for the evaluation of the NWTS steps. Instead of a policy of consultation and concurrence, the DOE seems to be following a course of evasion and exclusion.

Can you provide for the record, before next week—because we are marking up this bill and it is very important for us to have this information, so that we can know what we are talking about—a complete schedule of work which has been performed by the Department or its contractors or subcontractors in each of the five to six choices envisioned by DOE for NWTS?

Mr. **BREWER**. Yes, sir, Mr. Markey. In fact, we would provide that for the record before next week.

Mr. **MARKEY**. Could you provide any accounting of the correspondence received from the affected States and your replies to those States?

Mr. **BREWER**. Yes, sir.

Mr. **MARKEY**. Could you explain how you expect the States to cooperate—and that has been the case of the last half a year—if the States are consistently denied or refused pertinent information?

Mr. **BREWER**. Mr. Markey, it is our view that they are not denied and refused pertinent information. We have one of the most elaborate programs, as the Secretary said, of consultation and coordination.

[Testimony resumes on p. 318.]

[The following information was received:]

RESPONSES TO SUBCOMMITTEE QUESTIONS BY THE DEPARTMENT OF ENERGY

Q. Can you provide for the record a complete schedule of work which has been performed by the Department or its contractors or subcontractors on each of the top 5 or 6 choices envisioned by DOE for NWTS? (repository)

A. A chronological schedule by fiscal year of work by project office and state is provided. In order of presentation, they are 1) the Office of Nuclear Waste Isolation (ONWI) project which manages studies in states where salt formations are being investigated, 2) the Nevada Nuclear Waste Storage Investigations (NNWSI) Project on the DOE Nevada Test Site, and 3) the Basalt Waste Isolation Project (BWIP) on the DOE Hanford Site in Washington.

BATTELLE MEMORIAL INSTITUTE
WORK PERFORMED IN FY 78 THROUGH FY 82

The scope of activities of the Battelle Memorial Institute (BMI) program office (the Office of Nuclear Waste Isolation [ONWI]) has included management and technical direction of the National Waste Terminal Storage (NWTS) program in a fashion consistent with DOE guidance. BMI's activities have consisted of efforts in the following areas:

- Site and repository development - identification of potential sites within salt formations in the United States which are suitable for development as potential terminal waste repositories. The activities have included management, as related to qualification of the sites for compliance with specific criteria set forth by the DOE and the NRC, and direction of activities in support of design, construction, licensing, and operation of these repositories.

- Technology development - coordination and direction for development of screening criteria and specific technologies required in exploration, design, construction, licensing, operation, and monitoring of the repositories.

PERMIAN BASIN
WORK PERFORMED IN FY 78

TEXAS

DOE Prime Contractor

Texas Bureau of Economic Geology (TBEG)

TBEG initiated field investigations in the Texas Panhandle for the NWTS Program under the technical management of the Office of Waste Isolation (OWI), mainly in the areas of geomorphology and salt dissolution.

Office of Waste Isolation (OWI)/Battelle Subcontractors

Gruy Federal

Gruy Federal completed drilling and coring of two core holes in Texas, one in Swisher County and one in Randall County. A suite of conventional geophysical tests were performed in each hole and cores were sent to TBEG for analyses.

NUS Corporation

NUS conducted regional environmental studies using existing literature, and drafted the Regional Environmental Report and the Regional Summary and Recommendation Report.

Dr. K. S. Johnson, Consultant

Dr. Johnson has been a consultant to the NWTS program since 1974. He wrote the Regional Characterization Report and authored a report with Dr. Serge Gonzales on the geological characteristics of salt deposits in the U.S.

PERMIAN BASIN
WORK PERFORMED IN FY 79

TEXAS

DOE Prime Contractors

Texas Bureau of Economic Geology (TBEG)

Executed geologic research/exploration in the broad region of the Texas Panhandle, with emphasis on the Palo Duro and Dalhart subbasins. Investigations included salt dissolution, stratigraphic and petrographic characterization, geomorphologic processes, ground-water hydrology and geochemistry.

Gruy-Federal

Completed two-hole multipurpose drilling program which included down-hole geophysics and complete core to about 4,000 feet (planned by OWI in conjunction with Bureau of Economic Geology), and wrote well-completion report for each well.

Battelle Subcontractors

NUS Corporation

NUS Corporation completed a draft Regional Environmental Characterization Report based on published literature of the Permian Basin. This report described in very general terms the region's hydrology, resource potential, demography, socioeconomics, land use, ecosystem, air quality, and meteorology.

A Regional Summary and Area Recommendation Report was also prepared during this period for the Permian Basin. Utilizing geologic and environmental data collected during the regional study phase, these reports identified limited areas within the region which were suitable for further investigation.

PERMIAN BASIN
WORK PERFORMED IN FY 80

TEXAS

DOE Prime Contractors

Texas Bureau of Economic Geology (TBEG)

Studies initiated in FY 80 included more specific determination of salt character, natural resources potential, hydrologic integrity, host rock properties, and surface and near-surface process rates. The program in FY 80 passed into a more discriminating, intensified stage of evaluating priority items recognized during the earlier framework studies. Specifically, the FY 80 program was designed to address dynamic aspects of salt solution, deep-basin fluid circulation/movement, shallow aquifer hydrochemistry, and their integration with the three-dimensional facies framework and resource potential of the basin. In addition, land-resources evaluations were initiated to provide the basis for later social and economic decisions relative to host-rock feasibility.

Battelle Subcontractors

Stone & Webster Engineering Corporation (SWEC)

The Permian Basin Geologic Project Manager (GPM) contract was initiated during the fourth quarter of FY 80. Being the first quarter of activity for the program, the primary tasks were related to administrative organization of the project and development of detailed technical scopes of work and schedules. Work undertaken during this quarter included:

- Initiating collection of all pertinent existing data and literature on the geology, geophysics, and hydrogeology of the Texas Panhandle region. This was accomplished by standard geologic methods of literature search, collection of data from private and public sources, compilation and analysis of data using surface and subsurface maps and cross-sections, and computer data storage and retrieval.
- Developing specifications for screening the Permian Basin region in order to identify candidate areas.
- Initiating development of technical procedures and scopes of work for exploratory drilling and testing in Donley and Oldham Counties, Texas (Sawyer No. 1 and Mansfield No. 1 boreholes, respectively).

NUS Corporation

A draft Permian Area Environmental Characterization Report was prepared and available for internal review in 1980. Again this report was based on available literature. The nature of these studies was similar to those conducted during regional investigations; however, because the areas being evaluated were more limited, it was possible to gather more detailed information. Although no field work was performed, contact with state officials expanded the data base.

PERMIAN BASIN
WORK PERFORMED IN FY 81

TEXAS

DOE Prime Contractors

Texas Bureau of Economic Geology (TBEG)

Studies in FY 81 continued to address salt character, natural resource potential, hydrologic integrity, host-rock properties, ground-water geochemistry, surface and near-surface process rates, tectonic environment, and basin seismicity; all are problems that must be answered before completion of area characterization.

This year was highlighted by completion of a sedimentation survey of Lake Meredith and calculation of erosion rates in the Canadian River Valley, preliminary calculation of denudation and slope retreat rates for the Rolling Plains region and eastern Caprock Escarpment, continued monitoring of climatic, erosion, and sediment-transport processes, continued development of methods and procedures for measuring water content and distribution of fluid in bedded salt, completed study of deep basin brine aquifers and development of a conceptual model of flow through the basin, and calibration of geophysical logs with core obtained from the Tex White and Grabbe test wells. In addition, regional Bouguer gravity data were acquired and a quantitative, two-dimensional model for the Palo Duro Basin was constructed.

Battelle Subcontractors

Stone & Webster Engineering Corporation (SWEC)

Following completion of collection and review of the existing data base, activities involved preparation of a summary geologic characterization report and support of ONWI screening activities to identify qualified areas for focusing of studies. Following a systematic analysis of geophysical logs, the major salt beds of the basin were mapped and their distribution and characteristics noted. The San Andres salts were identified as the most probable repository host unit. Hydrologic modeling of the basin began this year and early assessments indicate favorable conditions within the basin.

Drilling of a stratigraphic well in Donley County (Sawyer No. 1) began in late June. The hole was drilled to Pre-Cambrian basement; a drill stem test was taken in the Wolfcamp Formation.

NUS Corporation

A Permian area summary and location recommendation report was initiated in January. Based on geologic and environmental data, this report identified smaller, more circumscribed candidate locations suitable for further investigation.

Efforts were initiated late in FY 1981 to identify potential project sites within these locations for further investigation. The first step in this process was the acquisition of aerial photographs during the last few days of the fiscal year. These images will be utilized for land use, ecosystem, and demographic analyses.

PERMIAN BASIN
WORK PERFORMED IN FY 82

TEXAS

DOE Prime Contractors

Texas Bureau of Economic Geology (TBEG)

The major emphasis of research activities shifted toward basin hydrology, ground-water geochemistry, and analysis of core material. Many thousands of feet of core became available as field activities increased in late 1981 and through early FY 82. Hydrologic and geochemical studies were accompanied and supported by continued analyses of surface processes, salt quality, natural resources, and tectonic history and seismic stability.

Ground-water studies led to development of a two-dimensional finite element model of the salt dissolution zone along the eastern portion of the basin. Detailed structure maps of Mississipian and Ordovician strata have recently been completed. Sampling, examination, and testing of core from the Sawyer No. 1 and Mansfield No. 1 boreholes is proceeding. TBEG staff has also spent much time during FY82 reviewing program plans and recommendations for future study within the Palo Duro Basin.

Battelle Subcontractors

Stone & Webster Engineering Corporation

Much of FY82 has been spent preparing plans and specifications for field investigations. Drilling at the Sawyer No. 1 borehole was completed in October, 1981; hydrologic pump testing at that site began in November. Drilling at the Mansfield No. 1 borehole started in November and was completed in March. Stratigraphic test holes (Detten and Friemel) were drilled within prospective study locations in Deaf Smith County during March and April. A hydrologic test well (Zeeck) was started in April in a prospective location in Swisher County. Plans are being developed for additional drilling and testing this fiscal year in Deaf Smith and Swisher Counties. Seismic reflection data was recently purchased in order to evaluate basin structure and to look for faults which may make repository siting unsafe. Plans have recently been finalized to purchase additional seismic data and to run high resolution seismic profiles over areas of prime interests in Deaf Smith and Swisher Counties.

SWEC has also proceeded with hydrologic modeling and recently completed detailed data gathering and analysis of the Ogallala aquifer. SWEC is presently revising the Area Geologic Characterization Report. SWEC has also supported ONWI in the preparation and revision of the Location Recommendation Report, first drafted in early FY 82.

NUS Corporation

Final versions of the Permian Regional Environmental Report and the Regional Summary and Area Recommendation Report were printed. The Area Environmental Characterization Report and the Location Recommendation Report were released to the State of Texas for their information and comment.

Limited environmental field work was initiated in December. This was primarily directed towards the field verification of the aerial photographs. Draft reports and maps were prepared on those environmental factors which would assist in site identification (i.e., land use, endangered species, historic and archaeological resources, socioeconomics, and hydrology.).

Ongoing environmental efforts for the balance of the fiscal year will be directed towards acquiring the data base to support NEPA documentation and meeting other regulatory requirements for an exploratory shaft. This will include field research, literature reviews, interviews, and technical analysis of the following factors: hydrology, meteorology, air quality, radiology, noise, ecology, land use, transportation, historic and archaeological resources, demography, local economy, and social structure.

PARADOX BASIN
WORK PERFORMED IN FY 78

UTAH

DOE Prime Contractors

United States Geological Survey (USGS)

Conducted on-going data collection and interpretation in support of the geologic characterization. Activities included:

- Hydrologic testing of Salt Valley boreholes
- Geophysical investigations in Salt Valley
- Evaluation of the region utilizing remote sensing
- Compilation of hydrologic data for the region.

Office of Waste Isolation/Battelle Subcontractors

Woodward-Clyde Consultants (WCC)

Conducted geologic characterization studies in the Paradox Basin region. Activities included:

- Literature research
- Drilling of three boreholes initiated in Salt Valley
- Initial preparation of report to identify areas for more detailed studies

Bechtel Group, Inc. (BGI)

Conducted a literature survey to collect the necessary data and determine data needs for environmental characterization. Prepared a draft regional environmental report.

PARADOX BASIN
WORK PERFORMED IN FY 79

UTAH

DOE Prime Contractors

United States Geological Survey (USGS)

Conducted on-going data gathering and interpretation which included:

- Chemical and mineralogic characterization of core from Paradox boreholes
- Geophysical studies--gravity, electrical, and seismic
- Completed Salt Valley hydrologic testing
- Compilation of hydrologic data

Battelle Subcontractors

Woodward-Clyde Consultants (WCC)

Conducted geologic characterization studies which included:

- Completion of Salt Valley boreholes
- Geologic mapping of the Elk Ridge area
- Installation and operation of a long-term seismic monitoring network
- Preparation of Regional Summary Report and Area Recommendation Report
- Preparation of Salt Valley Borehole Completion Report

Bechtel Group, Inc. (BGI)

Conducted literature survey for four areas: Elk Ridge, Gibson Dome, Lisbon Valley, and Salt Valley. A draft of the Summary Characterization and Recommendation Report was prepared.

Utah Geological and Mineral Survey (UGMS)

Initiated an inventory of the mineral resources of the Paradox Basin.

PARADOX BASIN
WORK PERFORMED IN FY 80

UTAH

DOE Prime Contractors

United States Geological Survey (USGS)

Conducted on-going data gathering and interpretation which included:

- Geochemical and mineralogical characterization of core from the Paradox Basin boreholes
- Geophysical investigations--gravity, electrical, and seismic
- Compilation of hydrologic data

Battelle Subcontractors

Woodward-Clyde Consultants (WCC)

Conducted geological characterization activities in the Paradox Basin which included:

- Geologic mapping of the Gibson Dome area
- Initiating Gibson Dome No. 1 (GD-1) borehole
- Long-term seismic monitoring
- Lineament and fault mapping
- Completion of Regional Summary and Area Recommendation Report
- Water and soil sampling for geochemical analysis

Bechtel Group, Inc. (BGI)

Prepared a draft of Environmental Characterization of Study Areas and initiated preliminary water source studies and a transportation access study.

Utah Geological and Mineral Survey (UGMS)

Completed the mineral resource inventory of the Paradox Basin (Utah Geological and Mineral Survey Report of investigation No. 143). Initiated a stratigraphic investigation of the growth and stability of the Paradox Basin anticlines.

PARADOX BASIN
WORK PERFORMED IN FY 81

UTAH

DOE Prime Contractors

United States Geological Survey (USGS)

Conducted on-going data gathering and interpretation which included:

- Chemical and mineralogy characterization of core from Paradox boreholes
- Geophysical investigation--gravity, electrical, and seismic
- Mapping of Quaternary deposits in Fisher Valley
- Compilation of hydrologic data

Battelle Subcontractors

Woodward-Clyde Consultants (WCC)

Conducted geological characterization studies which included:

- Gibson Dome No. 1 (GD-1) borehole and hydrologic testing (Completed)
- Kubat borehole re-entry and testing (Completed)
- Elk Ridge No. 1 (ER-1) borehole started
- Preparation of the Area Characterization Report
- Preparation of the geologic portion of the Location Recommendation Report
- Long-term seismic monitoring
- Porosity and permeability testing of Gibson Dome No. 1 (GD-1) core
- Geochemical analysis of rock, soil, and water samples

Bechtel Group, Inc. (BGI)

Activities included:

- Topical report preparation (Water Sources and Conservation)
- Topical report preparation (Environmental Evaluation of NWTS Geologic Activities)
- Initiation of field studies to characterize the socioeconomic infrastructure
- Preparation of environmental portion of the Location Recommendation Report

Utah Geological and Mineral Survey (UGMS)

Activities included continued stratigraphic investigations of the growth and stability of Paradox Basin salt anticlines.

PARADOX BASIN
WORK PERFORMED IN FY 82

UTAH

DOE Prime Contractors

United States Geological Survey (USGS)

Conducted on-going data gathering and interpretation which included:

- Chemical and mineralogical characterization of core from Paradox holes
- Geophysical investigations--gravity, electrical, and seismic
- Mapping Quaternary deposits in Fisher Valley
- Compilation of hydrologic data

Battelle Subcontractors

Woodward-Clyde Consultants (WCC)

Conducted geological characterization studies which included:

- Completion of the Elk Ridge No. 1 (ER-1) borehole
- Hydrologic testing of the Elk Ridge No. 1 (ER-1) borehole
- Long-term seismic monitoring
- Completion of the Area Characterization Report and Location Recommendation Report
- Completion of the Gibson Dome No. 1 (GD-1), Elk Ridge (ER-1) and Kubat Completion Reports.

Bechtel Group, Inc. (BGI)

Conducted environmental characterization activities which included:

- Field archaelogical surveys
- Threatened and Endangered species survey
- Ambient noise survey
- Probable maximum flood study
- Air quality computer modeling
- Viewshed analysis

Utah Geological and Mineral Survey (UGMS)

Activities included completion of investigations of the growth and stability of Paradox Basin salt anticlines.

GULF COAST SALT DOMES
WORK PERFORMED IN FY 78

LOUISIANA, MISSISSIPPI, AND TEXAS

DOE Prime Contractors

Louisiana State University - Institute for Environmental Studies (LSU)

LSU completed two deep core holes in the Louisiana salt domes (Rayburn's and Vacherie). Both core holes were drilled to 5,000 feet in depth and 2,500 feet of core was obtained from the top of caprock down into the salt stock. Terrace dating studies, core analysis, hydrologic studies, and geomechanical surveys were initiated. An annual report was prepared.

Texas Bureau of Economic Geology (TBEG)

The TBEG began work on the NWTS program January 1, 1978. TBEG began its study with an intensive program of gathering data from existing sources.

Studies were initiated in regional stratigraphy, regional hydrology, and past resource use. In addition, areal reconnaissance and limited field work was undertaken.

U.S. Geological Survey (USGS)

The 263 onshore known or suspected salt domes were evaluated by the USGS, and 36 domes were identified as "potentially acceptable". The USGS screening criteria were based on:

- Maximum depth to salt of less than 2,000 feet
- Lack of previous use by industry (oil, gas, sulfur, etc.).

Office of Waste Isolation (OWI)/Battelle Subcontractors

Law Engineering & Testing Company/Bechtel

Conducted regional phase screening activities consisting of literature searches, data base management, and data analysis. Screening began on over 500 Gulf Coast salt domes, onshore and offshore. Elimination of the offshore domes left 263 domes in three salt basins in Mississippi, Louisiana, and Texas. Further screening of the 263 domes identified 11 domes acceptable based upon application of the following geologic criteria:

- Salt domes should be at depths greater than 1,000 feet and less than 3,000 feet.
- Salt domes should have cross sectional areas greater than 1,000 acres in lateral extent, plus a surrounding 500-foot salt barrier zone.
- Salt domes should not have been used by industry for hydrocarbon production, storage, or other mineral related uses.

The 11 domes meeting the geologic criteria were Palestine, Brooks, Keechi, Mt. Sylvan, Oakwood, and Boggy Creek in Texas; Cypress Creek, Lampton, and Richton in Mississippi; and Rayburn's and Vacherie in Louisiana.

Non-geologic screening criteria (i.e., proximity to large urban developments, other potentially conflicting land uses, and locations beneath or standing on flowing bodies of water) eliminated three of the above: Boggy Creek, Mt. Sylvan, and Brooks.

GULF COAST SALT DOMES
WORK PERFORMED IN FY 79

LOUISIANA, MISSISSIPPI, AND TEXAS

DOE Prime Contractors

Louisiana State University - Institute for Environmental Studies

Field programs were continued on Rayburn's and Vacherie Domes in Louisiana, consisting of geomechanical tests, tiltmeter surveys, caliper surveys in deep open core holes, releveling surveys, input to rock mechanics of salt domes, Quaternary geology, terrace correlation and dating, anomalous sands, drainage analysis, hydrology, stability of mined openings, isotopic analysis, age dating and origin determination for mine leakage, regional geology, core analysis and description, regional and local geology, and structure studies. A number of shallow geologic borings were drilled on Rayburn's and Vacherie Domes to provide information to the Quaternary geology and regional geology principal investigators. An annual report was prepared.

Texas Bureau of Economic Geology (TBEG)

In FY 79 study of Palestine Dome proved it to be unsuitable for nuclear waste isolation and it was eliminated from further study. Studies in FY 79 showed that Oakwood Dome did not appear to be dissolving despite its apparent contact with the Wilcox aquifer. In addition, dome growth, drainage patterns over the domes, and salt dome growth history were studied.

U.S. Geological Survey (USGS)

The USGS district offices provided personnel support to the regional ground-water program. USGS personnel provided input to planning efforts, well location, screened-interval selection, and well construction, as well as analysis of hydrological data in Mississippi and Louisiana. USGS open-file reports were prepared.

Battelle Subcontractors

Law Engineering Testing Company/Bechtel

Screening studies were completed in the three salt basins and eight salt domes were identified for Area Studies. The eight domes were

Law Engineering Testing Company/Bechtel (Continued)

Palestine, Oakwood, and Keechi in Texas; Rayburn's and Vacherie in Louisiana; and Lampton, Cypress Creek, and Richton in Mississippi.

Law Engineering Testing Company

Area Studies initiated on the eight domes in the three salt basins, consisted of deep and shallow hydrologic and geologic borehole sites in Mississippi and Texas, geologic mapping, geophysical surveys (seismic resistivity and gravity), core sampling for water quality testing and analysis, and core and sample testing and analysis. These field surveys were centered around Palestine and Oakwood Domes in Texas; and Lampton, Cypress Creek, and Richton Domes in Mississippi. Basin analysis studies were initiated in each of the three salt basins (Mississippi, Louisiana, and Texas) to manage all data procurred from field studies and literature searches.

Bechtel

Environmental and socioeconomic programs were initiated in the three states with emphasis placed on support for the field activities underway and data gathering for the area phase.

GULF COAST SALT DOMES
WORK PERFORMED IN FY 80

LOUISIANA, MISSISSIPPI, AND TEXAS

DOE Prime Contractors

Louisiana State University - Institute for Environmental Studies

Discipline-oriented studies continued in the subject of geomechanics, Quaternary geology, hydrology, and regional geology. An open pit excavated on Rayburn's Dome was logged and sampled and other studies continued. An annual report was prepared.

Texas Bureau of Economic Geology (TBEG)

In FY 80 studies continued and became more specific. Surface geology over Keechi and Oakwood Domes was studied using field mapping and shallow coring. The hydrology program included the drilling of five wells and the coring of 500 feet of caprock and salt. Water level monitoring, water sampling and ground-water modeling were also performed. The stratigraphy of the basin was investigated using well logs and seismic reflection data. Maps of structure, facies and bed thickness were produced. Caprock characteristics, dome growth, and resource potential were also investigated.

U.S. Geological Survey (USGS)

The deep hydrologic site data obtained in Mississippi and Louisiana were analyzed and open-file reports prepared.

Battelle Subcontractors

Law Engineering Testing Company (LETCo)

Area Studies continued in the three salt dome basins in Mississippi, Texas, and Louisiana. The deep and shallow drilling programs were completed in Mississippi and Texas, and were initiated and completed in Louisiana. Three deep well sites were drilled, constructed, and tested in Texas adjacent to Oakwood Dome. These are TOG-1, TOH-2, and TOH-5.

Palestine Dome was eliminated, following preparation of a report describing previous boring operations resulting in overdome land subsidence.

A total of 11 deep well sites were drilled, constructed, and tested in Mississippi adjacent to Lampton, Cypress Creek, and Richton domes. These are MH-8, MRIG-9, MRIG-10, MRIH-11, MCCG-1, MCCG-2, MCCG-3, MH-4, MH-5, MH-6, and MH-7. Two series of shallow geological borings were completed adjacent to Richton and Cypress Creek Domes.

In Louisiana five deep well sites were drilled, constructed, and tested near Rayburn's and Vacherie Domes. These are LH-2, LH-7, LH-6, LRH-13, and LH-17.

Bechtel

A Draft Preliminary Information Report (PIR) was prepared with input from LETCo to demonstrate the capability to prepare, produce, and defend a Preliminary Safety Analysis Report.

In addition, Bechtel produced the "Regional Environmental Characterization Report for the Gulf Interior Region and Surrounding Territory", and LETCo produced the "Geologic Evaluation of Gulf Coast Salt Domes: Overall Assessment of the Gulf Interior Region".

GULF COAST SALT DOMES
WORK PERFORMED IN FY 81

LOUISIANA, MISSISSIPPI, AND TEXAS

DOE Prime Contractors

Louisiana State University - Institute for Environmental Studies

Continued discipline-oriented studies; geomechanics, conducted borehole closure caliper survey, completed tiltmeter data collection and analysis and reporting, hydrology; continued water sample analysis for mined opening study completed 2-D hydrologic model, Quaternary geology; completed restoration of Vacherie and Rayburn's Dome core hole sites, completed analysis of shallow boring samples and terrace dating studies, regional geology; continued salt core analysis and regional geology data gathering and interpretation. An annual report was prepared.

Texas Bureau of Economic Geology (TBEG)

In FY 81 the Bureau turned its effort to generic studies due to the decreased emphasis on the Texas domes. The Bureau undertook six studies: meteoric hydrology, deep basin hydrology, caprock formation, internal dome structures, stratigraphic studies, and basin tectonics.

Hydrology remained of prime concern to the program. A ground-water model for Oakwood Dome was established and the effects of the dome on deep basin hydrology were studied to determine whether the dome was dissolving and to determine the direction of ground-water flow. The history of dome growth was studied by relating salt strain to growth. Studies of the surrounding sediments and basin tectonics yielded information on dome growth and hydrologic stability. Seismic risk was also studied with the installation of microseismic monitoring stations. The results of these studies are being prepared.

U.S. Geological Survey (USGS)

Completion of the deep well site data analysis and input to the Site Characterization Plan were accomplished. Open-file reports were prepared.

Battelle Subcontractors

Law Engineeering & Testing Company (LETCo)

No area phase field work was accomplsihed in any of the three salt basins. Geologic Area Characterization Reports were prepared and submitted. An intense effort was mounted to produce a Site Characterization Plan, in concert with the state agencies, to identify the issues, the activity required to solve each issue, the data to be obtained, for the four domes contained in the three salt basins; Oakwood in Texas, Vacherie in Louisiana, and Cypress Creek and Richton in Mississippi.

LETCo completed all tasks and transmitted the resulting deliverables to the Office of Nuclear Waste Isolation.

Bechtel

Completion of the final Environmental Area Characterization Reports was accomplished and input to the Site Characterization Plan obtained and coordinated.

GULF COAST SALT DOMES
WORK PERFORMED IN FY 82

LOUISIANA, MISSISSIPPI, AND TEXAS

DOE Prime Contractors

Louisiana State University - Institute for Environmental Studies (LSU)

LSU continued its discipline-oriented studies as follows. Geomechanics: completed releveling survey of domes and completed caliper survey of two core holes. Hydrology: completed all water sample analysis and interpretation, and report is being prepared. Quaternary: provided input to GPM Activity Plans for shallow boring and terrace studies, preparing comprehensive Quaternary studies reports for Vacherie and Rayburn's domes. Regional geology: provided input to GPM Activity Plans, coordinating tour through active mines for DOE and ONWI, and is maintaining core storage facility. Specific special reports are being prepared.

Texas Bureau of Economic Geology (BEG)

With the deferral of Oakwood Dome and the elimination of Keechi Dome in the Location Recommendation Report, TBEG's role in the NWTS program became one of conducting strictly generic studies. In FY 82 the tasks undertaken by the TBEG were deep basin hydrology, and caprock and its role in the hydrologic integrity of the dome and structural stability. The methods and conclusions of these studies are expected to be of great use in the Louisiana and Mississippi salt dome basins.

U.S. Geological Survey (USGS)

Location phase planning and open-file report preparation is in progress.

Battelle Subcontractors

Ertec

Final negotiations were conducted, and a contract signed, with Ertec as a successful bidder, for the expanded Southern Region Geologic Project Manager (GPM) for salt domes and other media in the southern region of the United States.

Location phase planning activities, activity plans, and procedures were prepared and submitted for review/approval to the Office of Nuclear Waste Isolation. Subcontractor procurement efforts were initiated and concluded for land access and legal firms in Mississippi and Louisiana.

Law Engineering & Testing Company (LETCo)

Records transfer of all salt domes records was initiated in two phases to turn over all required records for completion of the project.

Bechtel

Activity plan and procedure preparation were initiated for Location Phase Activities.

NEVADA
Nevada Nuclear Waste Storage Investigations Project

FY 1977 Project (Siting)

In FY 1977, the NNWSI were formally organized by the DOE to investigate and determine whether specific underground rock masses are suitable for permanently disposing of highly radioactive wastes and to determine whether the NTS would qualify as a suitable repository site.

Early investigations concentrated on the subsurface granitic rock of the Climax Stock which was accessible using the facilities constructed for previous NTS weapons tests and the exposed argillaceous rock of the Eleana formation in the Syncline Ridge area of the NTS. Other investigations were conducted on the Twinridge Hill and Timber Mountain areas of the NTS. Weapons test ground motion monitoring stations were installed at surface and downhole locations to provide data on which to judge the compatibility of an underground repository with underground nuclear weapons testing activities at the NTS.

FY 1978 Project (Siting)

In FY 1978, some of the first work was focused on determining whether a nuclear waste repository would be compatible with present and future nuclear weapons testing activities at the NTS. The ground motion induced by weapons tests was monitored. The data showed that ground motion is attenuated in the near field to an even greater degree than was expected on the basis of earlier calculations. Consequently, the ground motion induced by nuclear weapons tests at the NTS would not preclude the construction of a repository as long as it was located at a sufficient distance from the underground detonation sites. A seismic net was also deployed to measure natural seismicity and to map tectonic activity for the NTS and for an area of about 100 miles in radius around the NTS.

In mid-FY 1978, the southwest portion of the NTS was determined to be an area where a nuclear waste repository would not interfere with current and known future weapons testing requirements. The Climax Stock, Twinridge Hill, and Timber Mountain, which were under investigation, were deferred from further consideration because of their proximity to current or potential future weapons testing areas. Investigations of the central block of Syncline Ridge were suspended because of its geologic complexity and, shortly thereafter, the entire Syncline Ridge area was also deferred from further consideration because of its proximity to weapons testing areas. Subsequent exploratory drilling and surface work were concentrated on selected areas of the southwest quadrant of the NTS. These areas included Wahmonie, Calico Hills, and Yucca Mountain. During FY 1978, two exploratory holes were drilled and cored to depths of about 2,500 feet at Calico Hills and Yucca Mountain; geophysical logs were obtained and the cores were shipped to participating laboratories for analysis. In addition, a variety of geologic, geophysical, and hydrologic studies were initiated or intensified during FY 1978.

The properties of four potential emplacement media at the NTS were studied during FY 1978. Consideration of one medium, alluvium, was deferred because of its low thermal conductivity. Studies of the three other potential media, granite, argillite, and tuff, continued into FY 1979. The exposed granitic rock masses in southern Nevada were inventoried during FY 1978. Analytical and inventory work was begun on shale, argillite, and tuff rock masses.

FY 1979 Project (Siting)

Several hydrologic studies were conducted during FY 1979 to determine the distribution and movement of groundwater in the NTS region. These studies included field mapping of discharge areas, monitoring of static water levels in available wells, and sampling of groundwater for chemical analyses and isotopic dating. Construction of a two-dimensional, finite difference model of an area 100 miles in radius around the NTS was also in progress during FY 1979 and a sensitivity analysis of the resulting regional groundwater transport model was initiated. A major conclusion reached in the paleohydrologic study was that the water table of the NTS was never more than about 200 feet above its present position during the Pleistocene (glacial) Epoch.

A study of past volcanic activity resulted in a preliminary determination of the probability of a recurrence of basaltic volcanism in the southwestern NTS area. The Black Mountain volcanic center, the youngest major silicic eruptive center in the NTS area, is about 7 to 9 million years old. A basalt from above the Timber Mountain tuff and below a huge tectonic slide block of Paleozoic rocks near the south end of the Crater Flat next to the NTS was dated at 10.4 million years, which is near the end of major volcanism and tectonism in the southern Timber Mountain caldera area.

After reviewing the geologic, geophysical, and hydrologic data for the Wahmonie, Yucca Mountain, and Calico Hills/Topopah Wash Locations, the USGS recommended that exploration be focused on the most promising potential repository host rock and location, the tuffaceous media of Yucca Mountain. Consequently, exploration and characterization efforts were intensified on Yucca Mountain tuffs and no new studies of other host rock media or locations were initiated.

FY 1980 Project (Siting)

Early in the year, a status report on the NNWSI evaluation of the suitability of the NTS for a repository was prepared and submitted to the DOE/HQ. The general conclusion of this report was that nothing has been found in the area of interest or its regional setting which would preclude the siting of a repository at the NTS, although a specific location for a suitable site has not as yet been identified.

The NNWSI focused its investigations on a block of tuffaceous media underlying Yucca Mountain. A major stratigraphic drill hole (USW-G1) was drilled, cored, logged, and hydrologically tested to 6,000 feet in depth. The tuffs encountered in the depth range of interest at the time were partially welded and moderately welded. These tuffs were competent rock with few fractures, and most of the fractures were healed. In September, drilling began on a major hydrologic hole (USW-111)to further characterize the block of interest.

Maps were compiled and data were gathered to establish, dimensionalize, and analyze the geohydrology and the geohydrologic setting of the NTS in the Great Basin. A major achievement was the compilation of a geologic base map of the southwest quadrant of the NTS at a scale of one inch equals 4,000 feet. The alluvial deposits in the region around Yucca Mountain were also mapped. Groundwater recharge from area to area was investigated and precipitation data were assessed for use in the sensitivity studies of parameters of the regional hydrologic model.

As a result of a study of erosion rates in the Great Basin, a simplified computer program and a mathematical model were devised to relate erosion and slopes to the rate of tectonic uplift. A geomorphic contour map of the Great Basin derived from the altitudes of valley-range intersections was prepared for use in quantifying Quaternary tectonic activity.

Geophysical techniques and data were used to remotely investigate subsurface conditions at and in the vicinity of Yucca Mountain. During FY 1980, all electrical traverse data obtained around Yucca Mountain were integrated with the mapped geology to produce a map of inferred faulting in the area of interest. Induced polarization lines of varying dipole spacing and length were completed over the potential repository block at Yucca Mountain. Ground magnetic traverses were also made in Crater Flat across several possible locations of future drill sites to explore the volcanic stratigraphy.

Work continued in developing a paleoclimatic scenario from which estimates of past precipitation levels are made for the hydrologic studies. Rat midden fossil assemblages of middle Wisconsin through Holocene age were collected, dated, and analyzed during FY 1980 to determine the altitudinal ranges of glacial and interglacial climatic changes at the NTS. The rat midden samples were collected at low, intermediate, and high elevations.

FY 1981 Project (Siting)

The Site Evaluation Working Group developed, evaluated, and began exercising a method for screening the southwest NTS and contiguous lands for nuclear waste repository locations. The relatively homogeneous lithologic units in the depth range of interest that are available in the screening area were reviewed and mapped. Technical experts in various fields were consulted to identify and document the pivotal physical and environmental attributes, assumptions, and rationale for assessing location suitability. These experts also rated the favorability and relative importance of the attributes they selected for screening locations within the southwest NTS screening area. Preliminary results were obtained which confirmed that Yucca Mountain is one of the better locations in the screening area.

The FY 1981 Project continued to concentrate on evaluating the technical acceptability of Yucca Mountain as a potential repository location. Geologic, geophysical, geochemical, hydrologic, volcanic, seismic, and environmental investigations continued to yield data which further characterized Yucca Mountain and its regional setting. In mid-FY 1981, the drilling program was accelerated to meet the new Administration's decision-making schedule. A major hydrologic hole (USW-H1) was drilled, cored, logged, and tested to 6,000 feet in depth near the center of the block of interest at Yucca Mountain.

Detailed mineralogic and petrographic characterizations were completed of drill-core samples from USW-G1, with emphasis on the potential target horizons. These characterizations showed that the tuffs, which generally are variably welded ash flows, can be recrystallized to a variety of minerals. The important alteration products are zeolites, smectite clays, and alkali feldspar.

At the end of FY 1981, a second major stratigraphic hole (USW-G2) was in the process of being completed and logged to 6,000 feet in depth at the north end of the block of interest at Yucca Mountain. Several other holes were completed during FY 1981, including a volcanic-hydrologic drillhole which explored the subsurface environment of Crater Flat just west of Yucca Mountain.

All mapping and other fieldwork for the regional volcanism studies were completed by late FY 1981. Sampling was completed for all basalt occurrences within the NTS region. Basalt centers in the NTS region were formed predominantly by Strombolian eruptions. Major products of the eruptions are small-to-moderate sized cinder cones and relatively short lava flows. The evolution of basaltic volcanism has been traced from generation at mantle depth through ascent and eruption at the surface. Data have been examined for each step in this evolution and possible repository disruption consequences have been evaluated. A draft report on the consequences of volcanic disruption to a repository was prepared and the probability calculations for volcanic risk were completed.

Five trenches were dug in the south and southeastern areas of Crater Flat next to Yucca Mountain. Two trenches were dug in an ancient spring area to expose the relationships between fine-grained sediments, alluvium, and ancient spring deposits. The other three trenches were dug on two faults to refine the age of the faults by exposing relationships between faulting and alluvium.

The spring area trenches revealed an intertonguing of gravelly alluvium and playa-type deposits with associated ancient spring deposits Some of the spring deposits are younger than the sediments. All deposits and sediments appear to be overlain in most places by alluvium (Q2) of intermediate age (probably about 100,000 years old). However, a date on the tufa deposits suggests activity there until about 25,000 years ago.

Trenches on the faults revealed that the faults have been inactive since about middle-Quaternary time. Alluvium (Q2) appears to overlap the faults and the basaltic ash found in one of the faults is probably from the 1.1 million-year-old Red Cone-Black Cone volcanic centers. Therefore, Quaternary faulting, fissuring, and basaltic eruptions probably occurred simultaneously in Crater Flat.

Contractor	Responsibilities
Sandia National Laboratory	Weapons test seismic investigations Area-to-location screening Environmental area characterization Horizon selecting activity
Los Alamos National Laboratory	Geochemistry Mineralogy/Petrology and mineral stability Volcanism
U.S. Geological Survey	Geology of Yucca Mountain Geophysical investigation of Yucca Mountain Hydrologic investigations Tectonics and seismicity Geochronology Drilling plans and monitoring Core library
Reynolds Electrical and Engineering Co.	Drilling
Fenix and Scisson, Inc.	Architectural engineer for drilling Drill hole logging
State of Nevada Geologist	Mineral resource study
EG&G, Inc.	Threatened and endangered species surveys
Desert Research Institute	Archaeological and historic site surveys
University of Nevada, Las Vegas	Socioeconomic impact surveys
University of Nevada, Reno	Mineral resources impact surveys
Boyles Brothers, Inc.	Drilling
Longyear, Inc.	Drilling

BASALT WASTE ISOLATION PROJECT - 1977
Contractor - Rockwell Hanford Operations

Siting Highlights

- o Preliminary feasibility study on storage of radioactive wastes in Columbia River Basalt documented.
- o Faults identified during mapping in the southwestern part of the Hanford Site show no indication of movement during the past 1.8 million years.
- o Two Boreholes, DC-2 and DC-3, completed to depths of 3,200 feet and 3,635 feet, respectively.

Summary Description of Siting Work Performed

A literature study was completed and a summary prepared of the thermo-mechanical properties measured on basalts and specifically the Columbia River Basalt. Hydrothermal experiments were started, the first of their kind, to determine the interactions, both chemical and mineralogical, that take place between candidate waste forms (spent fuel, calcine, supercalcine, and glass) and basalt under repository conditions.

The geotechnical studies continued toward development of a method for correlation of basalt flows. Thousands of chemical analyses were evaluated using statistical methods with much success. Field measurements of remnant magnetism were made and paleomagnetics were shown to be a valuable tool for correlating flows of the Grande Ronde Basalt, which are generally quite similar chemically.

Geological mapping continued with more than 200 mi^2 completed in the southwestern part of the Hanford Site. Field work continued in support of an assessment of the stability of the Hanford Site.

Washington
BASALT WASTE ISOLATION PROJECT - 1978
Contractor - Rockwell Hanford Operations

Siting Highlights

- o 20,000 mi^2 of reconnaissance geologic mapping of the basalt on the basalts on the Columbia Plateau, primarily in Washington, is completed. This mapping is on a scale of 1:250,000.
- o Over 23,000 feet of drilling was completed during the year.
- o Vertical fractures in core removed from boreholes found to be sealed by secondary mineralization.
- o The glass content of basalt was identified as reliable method for distinquishing basalt flow entablature and flow colonnade contact in core samples.

Summary Description of Siting Work Performed

Reconnaissance mapping of the basalt and sediments overlying the basalt on the Columbia Plateau was initiated. In addition, geologic studies of structures within the Pasco Basin in support of the site screening studies were carried out during the year. Drilling of boreholes DC-5, DC-6, DC-7, and DC-8 was completed during the year. Two shallow boreholes, DC-10 and DC-11, were also completed in support of the Near-Surface Test Facility. Hydrological tests were initiated in these boreholes following the completion of the drilling.

Washington
BASALT WASTE ISOLATION PROJECT - 1979
Contractor - Rockwell Hanford Operations

Siting Highlights

- Site identification process was formulated and the screening process to identify candidate sites was initiated. Cold Creek syncline identified as site locality.
- Regional mapping has demonstrated that a plateau-wide basalt stratigraphy is present and that the flows can be correlated through a combination of chemical, paleomagnetic, and field properties.
- Distinct hydrochemical and isotopical differences of groundwater within basalt formations were identified and suggest the lack of veritical communication across formational boundaries.

Summary Description of Siting Work Performed

Field work continued on the mapping of the Columbia Plateau, specifically in the south-central part of Washington. Monitoring of the seismicity of the Columbia Plateau continued. Eighty-seven miles of seismic reflection surveying and to support geophysical mapping was completed. More than 600 mi^2 of high resolution aeromagnetic surveying was completed.

Work continued toward characterization of regional and Hanford groundwater flow systems. In addition, hydrochemistry of spring waters were determined from 23 of the 125 springs identified west of the Hanford Site. More than 40 hydrological tests were completed in the existing boreholes on site.

A groundwater modeling program was initiated and preliminary simulations were conducted for both the near-field zone around the repository and the far-field zone away from the repository. Simulations for periods of time out to 50,000 years were completed.

Washington
BASALT WASTE ISOLATION PROJECT - 1980
Contractor - Rockwell Hanford Operations

Siting Highlights

- Three documents were published in which all of the available information obtained during preliminary site characterization on geology, hydrology, and engineered barriers, respectively, was integrated and summarized.
- A geologic map was published of the Pasco Basin in which the Hanford Site is located.
- The reference repository location was identified through the site screening process.

Summary Description of Siting Work Performed

Field studies related to preliminary site characterization continued throughout the year. Geophysical surveys in support of subsurface mapping were carried out. A detailed geologic map of the Pasco Basin in which the Hanford Site is located was published along with a status report integrating all of the geologic data obtained on the Hanford Study area to date. Special studies were completed relative to the potential for renewed volcanism in the Pacific Northwest and the economic potential of minerals and petroleum resources within the basalts underlying the Hanford Site.

Drilling and testing of boreholes continued throughout the year. Data on head distribution, hydraulic parameters, and hydrochemistry were integrated into a report providing a status of the hydrological studies made to date. The hydrological field data were input to numerical models for parametric and sensitivity analyses.

Work continued on the site screening process for the Hanford Study Area. Decision-analysis was used to identify the reference repositroy location from among the 10 candidate sites in the Cold Creek syncline.

Some Major Interactions

Texas	State, local officials tour WIPP, NTS	6/1-3/82	Carlsbad, NM Las Vegas, NV
Utah	Utah Nuclear Waste Repository Task Force	5/20-21/82	Moab, Monticello, UT
Texas	TENRAC High-Level Waste Subcommittee	4/20/82	Austin, TX
Ohio	Ohio League of Women Voters Representatives	4/2/82	Columbus, OH
Utah	Utah Nuclear Waste Repository Task Force	2/18/82	Salt Lake City, UT
Texas	Public meetings on Permian Basin studies	1/18-21/82	Tulia, Hereford, Austin, TX
Texas	County, local officials on Permian Basin studies	12/17-18/81	Tulia, Hereford, TX
Ohio	Ohio congressional delegation, state, county, and local officials on planned field studies at Cleveland Island Mine	11/25/81	Washington, DC Cleveland, OH
Utah	Public meetings	11/10 to 13/81	Monticello, Blanding, Moab, Salt Lake City, UT
Texas	TENRAC, TBEG, other state officials	11/9/81	Austin, TX
Louisiana	State, local officials	11/4/81	Baton Rouge, Webster, Bienville Parishes, LA
Mississippi	State, local officials	11/4/81	Jackson, Richton, MS
Michigan	Michigan state officials	10/20/81	East Lansing, MI
New Hampshire	New Hampshire state officials	9/25/81	Concord, NH
Utah	Utah Nuclear Waste Repository Task Force	9/22/81	Blanding, UT
New York	New York state officials	6/24/81	Albany, NY
Utah	Utah Nuclear Waste Repository Task Force	6/18/81	Salt Lake City, UT
Mississippi	Legislative forum	6/15/81	Hattiesburg, MS
Utah, Texas	NRC officials visit Paradox, Permian Basins	5/13 to 20/81	Moab, UT Amarillo, TX
Rhode Island	Rhode Island state officials	4/28/81	Providence, RI
Louisiana, Mississippi, and Texas	Louisiana, Mississippi, and Texas representatives meet on site characterization plan	4/27/81	Columbus, OH

Some Major Interactions (Continued)

Mississippi	Mississippi state officials	4/8/81	Jackson, MS
Louisiana	Louisiana legislators' conference on nuclear waste	4/7/81	Baton Rouge, LA
Utah	League of Women Voters' panel on nuclear waste	3/25/81	Salt Lake City, UT
New Jersey	New Jersey state officials	2/25/81	Trenton, NJ
Maine	Maine state officials	2/19/81	Augusta, ME
New Hampshire	New Hampshire state officials	2/18/81	Concord, NH
Utah	Response by BLM and DOE to 97 comment letters submitted after meetings in Moab and Blanding	2/18/81	Columbus, OH and Moab, UT
Louisiana, Mississippi, and Texas	Louisiana, Mississippi, and Texas officials	2/18/81	Columbus, OH
Utah	Utah Nuclear Waste Repository Task Force visits BWIP	1/8/81	Hanford, WA
Mississippi	Three public meetings	1 and 2/81	Perry County, MS
Utah	BLM holds public meeting	12/7/80	Monticello, UT
Vermont	Vermont officials	11/21/80	Montpelier, VT
Maine	Maine officials	11/20/80	Augusta, ME
Utah	Public meeting conducted by Utah Nuclear Waste Repository Task Force	11/12/80	Salt Lake City, UT
Minnesota	Minnesota officials	9/23/80	St. Paul, MN
Utah	U.S. Bureau of Land Management and state and local officials and the general public	9/3-4/80	Moab, Blanding, UT
Mississippi	Department of Energy and Transportation and other Mississippi agencies	9/2-3/80	Jackson, MS
Utah	Bureau of Land Management	7/15/80	Monticello, UT
Utah	Utah Nuclear Waste Repository Task Force	7/14/80	Monticello, UT
Michigan, Minnesota, and Wisconsin	Michigan, Minnesota, and Wisconsin officials	7/9/80	Madison, WI
Mississippi	Governor Winter and Mississippi officials	5/28/80	Jackson, MS

Some Major Interactions
(Continued)

New York	New York state officials	3/4/80	Albany, NY
Michigan	Governor Milliken's special committee on nuclear waste disposal	2/14/80	Lansing, MI
Nevada	Governor List and staff	2/1/80	Carson City, NV
Texas	Texas Energy and Natural Resources Advisory Council	1/9/80	Austin, TX
Nevada	Nevada state legislature and county officials	11/30/79	Las Vegas, NV
Mississippi	Governor's Select Committee on Nuclear Energy and Nuclear Waste Repository	11/28/79	Jackson, MS
Mississippi	Mississippi Wildlife Management Commission	11/27/79	Jackson, MS
Ohio	Ohio Department of Energy	11/20/79	Columbus, OH
Texas	County officials, Freestone County	10/22/79	Fairfield, TX
Michigan	Governor William G. Milliken and Michigan officials	9/12/79	Lansing, MI
Nevada	Clark County commissioners	9/5/79	Las Vegas, NV
Utah	County officials, Grand and San Juan counties	8/20/79	Moab, UT
Washington	Joint DOE-Washington state working group	7/31/79	Richland, WA
Utah	Governor Matheson/State Energy Council/ Utah Legislature Joint Interim Energy Committee	7/17-18/79	Salt Lake City, UT
Texas	State advisory committee on nuclear energy of the Texas Energy Advisory Council	7/9/79	Austin, TX
Mississippi	Governor Finch's Select Committee on Nuclear Energy and Nuclear Waste Repository	5/29/79	Hattiesburg, MS
Vermont	Vermont state nuclear advisory panel	5/10/79	Montpelier, VT
Mississippi	Press/news media	4/5/79	New Augusta, MS
Texas	Southwest Regional Energy Council	12/8/78	Dallas, TX
All	Numerous town and city public meetings	12/78 to present	

Washington
BASALT WASTE ISOLATION PROJECT - 1981
Contractor - Rockwell Hanford Operations

Siting Highlights

- The subsurface geology of the Cold Creek Syncline was documented including stratigraphic, lithologic, and structural interpretations of the Grande Ronde Basalt.
- The Block Test at the Near-Surface Test Facility was initiated. This is the largest isolated basalt rock mass ever tested.
- Corrosion screening tests of candidate canister and overpack materials were completed.
- Laboratory facilities for waste package characterization and thermomechanical testing of basalt rock were completed and operational.

Summary Description of Siting Work Performed

Field mapping and geophysical studies of the reference repository location continued. Emphasis was placed on site specific work during the year. Geophysical survey reports were prepared of the reference repository site. Seismic monitoring continued and a special seismic network was established at the reference repository location. The reconnaissance mapping of the basalts and overlying sediments on the Columbia Plateau was completed.

Drilling of Boreholes DC-12, DC-14, and DC-15 and deepening of DC-7 was completed. Hydrological testing in these boreholes was completed as the boreholes were drilled. This method of testing and sampling as drilling progresses is time consuming, but the data are more representative of the natural conditions at depth. Hydrological testing continued in the existing boreholes using single and multiple straddle packers.

Washington
BASALT WASTE ISOLATION PROJECT - 1982
Contractor - Rockwell Hanford Operations

Siting Highlights

- The site for the exploratory shaft was selected and authorization was given to drill the principal borehole for the shaft.
- Results of numerical modeling indicate the groundwater travel time from the reference repository location to the nearest point of discharge at Wallula Gap is in excess of 100,000 years.

Summary Description of Work Performed

Characterization work continued at the reference repository location. Tectonic studies to determine the long-term stability of the region also continued. Field work is in progress that indicates that the average rate of deformation is less than one meter per 10,000 years. Monitoring of the seismic activity in the region is continuing. In situ measurements of stress were completed in two boreholes, located in the Cold Creek Syncline. The preliminary results indicate an average horizontal to vertical stress ratio of about 2:1.

Q. Could you provide an accounting of the correspondence received from the affected states and your replies to those states? I understand that your responses have generally been months in coming and that most often they provide little, if any, information and are seldom responsive to the real inquiry.

A. An accounting of correspondence with those states affected by the NWTS siting program follows. Correspondence with DOE headquarters is provided first, then ONWI, NNWSI (Nevada) and BWIP (Washington). We have also provided an accompanying list of meetings and other interactions conducted with states as a result of the NWTS program. We do not agree with the assertion that our responses have not been timely or pertinent to a particular State's interests. Department of Energy staff personnel both at headquarters and in field office organizations are specifically assigned responsibilities to consult with affected states and to maintain a fluid contact with designated state, and often local, personnel.

Correspondence from State agencies may result from discussions between State and Federal program staff personnel. Often, if verbal communications do not provide satisfactory results, the federal employee will suggest that the state agency or governor seek a written response to an inquiry, thus procuring accountability from DOE management and a written assurance of DOE policy. When a question of policy arises, several different organizations within the Department may take part in providing the analysis leading to an answer. If the question involves legal responsibility, legislative capability or other kinds of policy guidance, a few days to one or more months may be required to respond fully; however, when it becomes obvious that an extended effort is necessary to respond to a State's inquiry, DOE will consult with the relevant State and local officials in order to assess them of the actions being taken to provide a response. Occasionally, the specific information required to answer a state's question does not exist. This situation could occur when a state has a concern about a subject yet to be studied or which is still in an investigative state. In this case, the state may be provided funds to help study the issue, if appropriate, or it may be told that DOE must generate the information. If the information has not yet been developed, and the DOE believes the request is premature in accordance with prescribed, published, or negotiated schedules, then the State may have to wait for its answer until the Department can accomplish the tasks that would lead to the pertinent information. This situation would always be discussed with the state. We believe the NWTS program truly provides a forum for full communication with the states in the spirit of partnership and cooperative federalism.

DOE-Headquarters
Correspondence as of July 1980*

*July 3, 1980, DOE sent letters to all 50 governors and tribal officials explaining the National scope and expansion of the NWTS program.

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
States - General and Northeast Crystalline States						
Arizona						
-	May 5, 1981	DOE-Gates	-	Gov. Babbitt	Telex, Gates to to Babbitt	Basin and Range Studies
Connecticut						
-	Oct. 6, 1980	DOE-Cunningham	-	Gov. Grasso	Letter, Cunningham to Grasso	Crystalline rock studies
Mar 23, 1982	Telephone	Ittleman	Mar 25, 1982	Smiley	Letter, Ballard to Ittleman	NWTS Siting Criteria
Apr 2, 1982	Telephone	Ittleman	Apr 5, 1982	Smiley	Letter, Smiley to Ittleman	NWTS Siting Documents
Maine						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Brennan	Letter, Cunningham to Brennan	Crystalline rock studies
Feb 8, 1982	Feb 4, 1982	Gov. Brennan	Mar 12, 1982	Sec. Edwards	Letter, Edwards to Brennan	State Vetoes
Mass.						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. King	Letter, Cunningham to King	Crystalline rock studies

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
New Hamp.						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Gallen	Letter, Cunningham to Gallen	Crystalline rock studies
Oct 20, 1980	Oct 14, 1980	Gov. Gallen	Feb 18, 1981	Cunningham	Briefing, Wunderlich	Requested a briefing
Mar 1, 1981	Feb 25, 1981	Rep. Wright	No action req.	Cunningham	N/A	Thank You
Mar 2, 1981	Feb 26, 1981	Gov. Gallen	N/A	Cunningham	N/A	Feb. 18 briefing
New Jersey						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Byrne	Letter, Cunningham to Byrne	Crystalline rock studies
Dec 12, 1980	telephone	Eng	Dec 15, 1980	Smedes	Letter, Smedes to Eng	Requested reports
New York						
-	Oct 6, 1980	DOE-Cunningham	-	Com. Larocca	Letter, Cunningham to Larocca	Crystalline rock studies
Dec 8, 1981	Nov 20, 1981	McFarland	Jan 4, 1981	Sec. Edwards	Letter, Coffman to McFarland	Support for program

Ohio

Note: In November, 1981, DOE announced plans to conduct experiments in a salt mine in Cleveland, Ohio. These tests would be generic in nature and are not part of the repository siting program; however erroneous newspaper reports caused many letters and resolutions of concern from townships around the Cleveland area. DOE responded to all such expressions of concern but since they do not relate to the siting program, they are not listed in response to the question.

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Dec 28, 1981	Dec 16, 1981	Gov. Rhodes	Jun 19, 1982	Sec. Edwards	Letter, Edwards to Rhodes	Whether Ohio is a site
Oregon						
-	May 5, 1981	DOE-Gates	-	Gov. Atiyeh	Telex, Gates to Atiyeh	Basin and Range Studies

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Penn.						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Thornburgh	Letter, Cunningham to Thornburgh	Crystalline rock studies
Rhode Island						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Garrahy	Letter, Cunningham to Garrahy	Crystalline rock studies
Apr 27, 1981	April 22, 1981	Gov. Garrahy	June 2, 1981	Gates	Letter, Gates to Ionata, after personal briefing and consultation	Crystalline rock studies
May 11, 1981	May 6, 1981	Ionata	June 2, 1981	Gates	Letter, Gates to Ionata--see above note	Crystalline rock studies
Vermont						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Snelling	Letter, Cunningham to Snelling	Crystalline rock studies
Nov 12, 1980	Nov 7, 1980	Whittaker	Nov 21, 1980	Meyers	Briefing, George in Montpelier (also Augusta, Maine on November 20)	Requested briefing
Dec 20, 1980	Dec 11, 1980	Ratte	Feb 4, 1981	Cunningham	Letter, Meyers to Ratte	Comments on documents
Dec 19, 1980	Dec 11, 1980	Ratte	Jan 16, 1981	George	letter, George to Ratte	Question of Wanner: Socioeconomic considerations of NWTS and siting process

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Vermont (Continued)						
Feb 25, 1981	Feb 19, 1981	Wanner	N/A	George	N/A	Appreciation for January 16 letter (previous page)
Apr 30, 1981	Apr 17, 1981	Gillies	May 4, 1981	Sec. Edwards	Letter, Wahlquist to Gillies	Town Resolution
Virginia						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Dalton	Leter, Cunningham to Dalton	Crystalline rock studies
Washington						
Nov 16, 1981	Nov 9, 1981	Gov. Spellman	Dec 22, 1981	Sec. Edwards	Letter, Edwards to Spellman	Nuclear Policy/ repository Siting
Dec 1, 1981	Nov 25, 1981	Lee	N/A	Davis/Cooley	N/A	Support of repository program
Southeast Crystalline States						
Maryland						
-	Jan 13, 1981	DOE-Cunningham	-	Gov. Hughes	Letter, Cunningham to Hughes	Crystalline rock studies
Georgia						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Busbee	Letter, Cunningham to Busbee	Crystalline rock studies
N. Carolina						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Hunt	Letter, Cunningham to Hunt	Crystalline rock studies

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
N. Carolina Continued						
Jan 26, 1981	Jan 19, 1981	Conrad	N/A	Meyers	N/A	Acknowledgement of documents
S. Carolina						
-	Oct 6, 1980	DOE-Cunningham	-	Gov. Riley	Letter, Cunningham to Riley	Crystalline rock studies
Lake Superior States						
Michigan						
-	June 10, 1981	DOE-Sec. Edwards	-	Gov. Milliken	Letter, Edwards to Milliken	Crystalline rock studies
June 23, 1981	June 15, 1981	Gov. Milliken	Sept 2, 1981	Sec. Edwards	Letter, Edwards to Milliken; required extensive review and State consultation	Request to exclude Mich. from NWTS studies
Nov 30, 1981	Nov 23, 1981	Gov. Milliken	N/A	Sec. Edwards	N/A	Accepted literature studies
-	Mar 5, 1982	DOE-Defrancis	-	Gov. Milliken	-	Keeping Gov. informed of NWTS siting process
Minnesota						
Aug 10, 1980	July 30, 1980	Gov. Quie	Sept. 15, 1980	Cunningham	Letter, Neff to Walton after extensive consultation; briefing, Sep. 23, 1980 in St. Paul	Crystalline rock studies

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Minnesota Continued						
Jan 12, 1981	Jan 6, 1981	Gov. Quie	Feb 13, 1981	Cunningham	Letter, Gates to Quie	Advance notice of RFP's
Sept 5, 1981	Aug 28, 1981	Walton	N/A	George	N/A	Appreciation for meeting
Wisconsin						
Aug 10, 1980	Aug 4, 1980	Strohl	Aug 7, 1980	"Gentlemen"	Letter, Heath to Strohl	Request for information
July 20, 1980	July 15, 1980	Munts/Strohl	July 30, 1980	Heath	Hearing, July 30	Requested DOE presentation at Hearing
Aug 20, 1980	Aug 13, 1980	Crowley	Sept 2, 1980	Heath	Letter, Heath to Crowley	Requested siting information
Sept 10, 1980	Sept 4, 1980	Gov. Dreyfus, et. al.	During Sept	Heath	Meetings with State personnel in Sept	Request to delay studies until a State group formed
Oct 2, 1980	Sept 29, 1980	Gov. Dreyfus	Oct 3, 1980	Heath	Telex, Heath to Dreyfus	Concern over draft report
Oct 7, 1980	Oct 6, 1980	Woodbury	Oct 20, 1980	Heath	Letter, Heath to Woodbury	Concern over draft report
Oct 8, 1980	Oct 2, 1980	Munts/Strohl	Oct 23, 1980	Heath	Letters, Heath to Munts & Strohl	Concern over draft report
Oct 17, 1980	Aug 28, 1980	Woodbury	Nov 6, 1980	Pres. Carter	Letter, Meyers to Woodbury	Federal/State relationships

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Wisconsin (Continued)						
N//A	Jan 15, 1981	DOE-Heath	Jan 15, 1981	Rep. Goodrich	Letter, Heath to Goodrich	Transmittal of answers to questions from public meeting.
Apr 6, 1981	Mar 28, 1981	Rep. Munts	Apr 28, 1981	Heath	Letter, Heath to Munts	State Grant
Apr 1, 1981	Mar 24, 1981	Dretzke	May 11, 1981	Heath	Letter, Heath to County Board of Supervisors	Waupaca County Resolution
-	May 21, 1981	Meyers	May 21, 1981	Gov. Dreyfus	Letter, Meyers to Dreyfus	Crystalline rock studies
Jul 9, 1981	Jun 25, 1981	Gov. Dreyfus	Open	Meyers	Open; continued state consultation	Requests delay in studies
Dec 10, 1981	Nov 27, 1981	Ostrom	N/A	George	N/A	Transmittal of State bill
Feb 16, 1982	Feb 9, 1982	Halstead	N/A	George	N/A	Transmittal of comments on DOE document
Mar 15, 1982	Mar 4, 1982	Kedrowski	Apr 2, 1982	Sec. Edwards	Letter, Coffman to Kedrowski	Joint State Resolution

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Gulf Coast States						
Louisiana						
Aug 1, 1980	Jul 24, 1980	Poynter	Aug 22, 1980	Sec. Duncan	Letter, Meyers to Poynter	La. House Resolution
Oct 16, 1980	Oct 10, 1980	Gov. Treen	-	Pres. Carter	-	White House Telegram
Dec 10, 1980	Nov 26, 1980	Ashby	Jan 5, 1981	Meyers	Letter, Meyers to Ashby	Jefferson Island Mine Accident
Feb 10, 1981	Jan 24, 1981	Gov. Treen	Feb 13, 1981	Sec. Edwards	Briefing, King to Treen	State veto
Feb 13, 1980	Feb 13, 1980	Huls	Mar 21, 1980	Sec. Duncan	Letter, Duncan to Huls	Salt domes studies
-	May 28, 1981	Sec. Edwards	May 28, 1981	Gov. Treen	Letter, Edwards to Treen	1978 State agreement
Aug 28, 1981	May 19, 1981	Gov. Treen	Sep 25, 1981	Sec. Edwards	Letter, Edwards to Treen; incoming lost in the mail; State resubmitted and noted mis-mailing. Response also apologized for long delay	1978 La. agreement
Apr 17, 1982	Apr 12, 1982	Bohlinger	Apr 26, 1982	George	Letter, George to Bohlinger	Speaking invitation

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Mississippi						
Mar 21, 1981	Mar 16, 1981	Ball	N/A	Sec. Edwards	N/A	Commendation for a DOE employee
-	Mar 18, 1981	DOE-Smiley	Mar 18, 1981	Walley	Letter, Smiley to Walley	County resolution
-	Mar 26, 1981	DOE-Smiley	Mar 26, 1981	Green	Letter, Smiley to Green	Transmittal of a policy paper
-	Mar 27, 1981	DOE-Smiley	Mar 27, 1981	Walley	Letter Smiley to Walley	Transmittal of a policy paper
May 4, 1981	May 1, 1981	Ball	May 27, 1981	Sec. Edwards	Presentation at Forum, Neff	Invitation to speak at Hattiesburg forum
Apr 15, 1981	Apr 6, 1981	Hollimon	May 8, 1981	Heath	Letter, Heath to Hollimon	NWTS Policy/Salt dome studies
Jul 14, 1981	Jul 8, 1981	Walley	Jul 14, 1981	Smiley	Letter, Smiley to Walley	Local ownership map
-	Jul 23, 1981	Sec. Edwards	Jul 23, 1981	Rahaim	Letter, Edwards to Rahaim	Richton salt dome studies
-	Oct 2, 1981	Smiley	Oct 2, 1981	Ball	Letter, Smiley to Ball	Request for state assistance on Cong. inquiry
Sep 8, 1981	Sep 3, 1981	Thompson	Oct 2, 1981	US DOE	Letter, Heath to Thompson	Ocean Springs COC resolution
Aug 25, 1981	Aug 18, 1981	Blessie/ McManus	Oct 2, 1981	US DOE	Letter, Heath to Blessie/McManus; Carbon copies to 6 Miss. newspapers	Biloxi resolution

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Mississippi (Cont.)						
Aug 23, 1981	Aug 6, 1981	Welch	Oct 2, 1981	Pres. Reagan	Letter, Heath to Welch	Rotary Resolution
Sep 10, 1981	Sep 4, 1981	Greer	Oct 2, 1981	Sec. Edwards	Letter, Heath to Greer	Miss. Ass. of Supervisors resolution
Sept 10, 1981	Aug 27, 1981	Blessie	Oct 5, 1981	Meyers	Letter, Meyers to Blessie	Biloxi Forum
Oct 7, 1981	Sep 1, 1981	Mitchell	Oct 26, 1981	US DOE	Letter, Meyers to Mitchell	Picayune resolution
-	Nov 4, 1981	DOE-Meyers	Nov 4, 1981	Blessie	Letter, Meyers to Blessie	Provided Mayor Blessie a statement for the Biloxi Forum
Oct 10, 1981	Oct 5, 1981	Ball	Nov 5, 1981	Sec. Edwards	Letter, Meyers to Ball; required strenuous legal and policy review	Concern over state consultation process
Nov 5, 1981	Oct 30, 1981	Green	N/A	Smiley	N/A	Completed Smiley request for state assistance, Oct 2, 1981
Nov 16, 1981	Nov 11, 1981	Rahaim	Dec 9, 1981	Sec. Edwards	Letter, Cooley to Rahaim	Richton town resolution
Oct 14, 1981	Oct 9, 1981	McPherson	Dec 23, 1981	US DOE	Letter, Cooley to McPherson	Ocean Springs resolution
Feb 24, 1981	Feb 17, 1981	Allain	Mar 17, 1982	US DOE-HQ	Letter, Coffman to Allain acknowleging FOI request	FOIA request

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Texas						
Jul 26, 1980	Jul 21, 1980	Gov. Clements	N/A	Sec. Duncan	N/A	Formulation of TENRAC
Nov 25, 1980	Nov 20, 1980	Wermund	N/A	George	N/A	Information
-	May 5, 1981	DOE-Gates	May 5, 1981	Gov. Clements	Telex, Gates to Clements	Basin and Range Studies
Apr 11, 1981	Apr 6, 1981	Holloway	May 7, 1981	Heath	Letter, Heath to Holloway	press releases
Aug 8, 1981	Jul 31, 1981	Gov. Clements	Sep 14, 1981	Sec. Edwards	Letter, Edwards to Clements; C&C required between NPO and TBEG to provide agreeable response; Heath attended TENRAC meeting in Austin, Sep 3, 1981	Requested schedules and briefing for TENRAC
Nov 23, 1981	Oct 23, 1981	Gov. Clements	Dec 22, 1981	Sec. Edwards	Letter, Edwards to Clements	Palo Duro siting schedule
Nov 30, 1981	Nov 24, 1981	Wermund	N/A	George	Above letter to Gov. Clements; continued consultation with TBEG & TENRAC to develop schedule	Palo Duro schedule
Dec 23, 1981	Dec 17, 1981	Kennedy	Feb 23, 1982	US DOE	Letter, Ballard to Kennedy	Resolution on Texas studies
-	Mar 11, 1982	Sec. Edwards	Mar 11, 1982	Gov. Clements	Letter, Edwards to Clements, detailed response to Gov's July & Oct letters	Schedule for Palo Duro studies

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Texas (Cont.)						
Mar 22, 1982	Mar 18, 1982	Gov. Clements	Apr 21, 1982	Sec. Edwards	Letter, Edwards to Clements	Supportive program TENRAC resolution
Western States						
California						
-	May 5, 1981	Gates	May 5, 1981	Gov. Brown	Telex, Gates to Brown	Basin and Range studies
Idaho						
-	May 5, 1981	Gates	May 5, 1981	Gov. Evans	Telex, Gates to Evans	Basin & Range studies
Nevada						
-	Oct 28, 1980	Gates	Oct 28, 1981	Gov. List	Letter, Gates to List	Wis. and MI Gov's tour of NTS
-	Jan 22, 1981	Gates	Jan 22, 1981	Gov. List	Letter, Gates to List	EEI to manage concept design for dry surface storage
-	May 5, 1981	Gates	May 5, 1981	Gov. List	Telex, Gates to List	Basin and Range studies
Jun 9, 1981	May 20, 1981	Gov. List	-	Gates	Personal consultation w/List and Gates	NTS studies
-	-	Gov. List	June 19, 1981	Edwards	Letter, Meyers to List	Basin and Range studies

Correspondence (Continued)

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
New Mexico						
-	May 5, 1981	Gates	May 5, 1981	Gov. King	Telex, Gates to King	Basin and Range studies
Utah						
-	June 18, 1980	DOE-Neff	June 18, 1980	Mason (Dept. of Health) Scherick (BLM)	Letter and July 15 briefing	Agenda for July 15 briefing
-	Jul 9, 1980	DOE-Meyers	Jul 9, 1980	Mason	Letter, Meyers to Mason	Congratulations on appt. to head Task Force; transmittal of background info.
-	May 5, 1981	Gates	May 5, 1981	Gov. Matheson	Telex, Gates to Matheson	Basin and Range studies
-	June 24, 1981	Wm Howell SE Utah Ass. of Local Gov't.	-	Heath	Comments passed on to ONWI	Comments on DOE-33
Mar 24, 1982	Mar 8, 1982	Gov. Matheson	Apr 12, 1982	Edwards	Letter, Edwards to Matheson	Criticisms of consultation process and siting plan
	Mar 15, 1982	L. Semken, Utah Ass. of Local Gov't	Apr 6, 1982	Edwards	Letter, Ballard to Semken	Support of siting studies
-	Mar 9, 1982	C. Black, Comm. San Juan County	Mar 30, 1982	Edwards	Letter, Coffman to Black	Support of siting studies
-	May 19, 1982	Gov. Matheson	-	C. George	Comments passed on to ONWI	Comments on Nat'l Siting Plan
-	Apr 30, 1982	Gov. Matheson	N/A	Edwards	N/A	Review of ONWI Document

ONWI STATE CORRESPONDENCE

CONNETICUT STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
030981	030381	O'Neil	CT	031881	Neff	LO* NEFF TO O'NEIL	APPROVAL FOR REGIONAL LITERATURE SEARCH

* LO=Letter Out

GEORGIA STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
042682	042282	Wacaster	GA	NAR*	Neff	NAR*	MISSISSIPPI'S HIGH-LEVEL WASTE PUBLIC INFORMATION PROGRAM
	092481	Nunn	GA	101581	Edwards	LO, NEFF TO NUNN	QUESTIONS ON CONTRACTOR

* NAR=No Answer Required

LOUISIANA STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
061581	061081	Fair	LA	062381	Neff	LO, NEFF TO FAIR, 6/23	REQUEST CONCERNING THE DRILLING OF COREHOLE IN THE RAYBURN SALT DOME
011182	010682	Hungesser	LA	NAR	Neff	NAR	THANK YOU FOR INFORMATION PROVIDED
041682	041282	Bohlinger	LA	NAR	Baillieul	NAR	COMMENTS ON ONWI 293

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MAINE STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc	
	022781	Anderson	ME	041381	Wunderlich	LO, ENGLAND TO ANDERSON	C&C GRANT FOR NWTS IN CRYSTALLINE ROCK	
030381	022781	Anderson	ME	041381	Neff	AWARDED 4/17[1]	PROPOSAL,"STATE OF MAINE, CONSULTATION NWTS IN CRYSTALLINE ROCKS OF THE NORTH OF MAINE"	ND CONCURRENCE N APPALACHIANS
040681	040381	Ricke	ME	041381	Lahoti	LO, TO ANDERSON	STATE OF MAINE - FORM 424, ASSURANCE O	COMPLIANCE
042381	041681	Anderson	ME	050781	Neff	AWARDED 4/7/81	TRANSMITS TWO SIGNED COPIES OF GRANT N 97-81NE46640	DE-FG

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[1] PROPOSALS NORMALLY TAKE A FEW MONTHS AND INVOLVE A LOT OF TELEPHONE CONVERSATIONS AS DETAILS OF THE PROPOSAL AND CONTRACT ARE WORKED OUT.

MASSACHUSETTS STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc	
012181	012181 TC	Morgen- stern	MA	012681	MA	TC NEFF TO MORGENSTERN	COPIES OF DOCUMENTS SENT TO GOV. KING	

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MICHIGAN STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
120280	Phone	Callen	MI	120280	Wunderlich	LO, NEFF TO CALLEN	STATE AGREEMENTS WITH TEXAS, LOUISIANA, NEW MEXICO
010081		Porter	MI	011281	Wunderlich	LO, NEFF TO PORTER	1980 NWTS MEETING PROCEEDINGS
		Callen	MI	111280	Wunderlich	LO, NEFF TO CALLEN	ACRES AMERICAN REPORT ON SOUTHERN PIEDMONT REGION
030081		Callen	MI	031381	Wunderlich	LO, WUNDERLICH TO CALLEN	REGIONAL REPORT, NEWSPAPER CLIPPINGS, ACTIVITIES
031681	031281	Taylor	MI	061781	Neff	LO, NEFF TO TAYLOR, 6/17	STUDY OF THE CHARACTERISTICS OF AGED BASALT UNDER RESEARCH PROGRAM SPONSORED BY DOE (BY MICHIGAN TECHNOLOGICAL UNIV.)
021282	021082	Howe	MI	NAR	Neff	NAR	ACKNOWLEDGE RECEIPT OF INFORMATION
040882	040282	Coffman	DOE/HQ	040282	Levin	DOE/HQ'S ACTION	RESPONSE TO SENATOR LEVIN'S LETTER OF FEB. 1[illegible], COMPLETES 751-2A

MINNESOTA STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
Previous Conversations		Walton	MN	111280	Neff	LO, NEFF TO WALTON	ACRES AMERICA REPORT ON SOUTHERN PIEDMONT REGION
	100280	Walton	MN		DOE/NPO	NAR	COMMENTS ON DAMES AND MOORE REPORT
	073080	Quie	MN		DOE/HQ	NAR	RESPONDING TO LETTER OF 070380

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MISSISSIPPI STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
100880		Ball	MS	012081	Neff	LO, NEFF TO BALL	DRAFT OF PROPOSED AGREEMENT WITH MS
121180		Green	MS	010981	Neff	LO, NEFF TO GREEN	REVIEW OF MS CORES
122080		Green	MS	010981	Neff	LO, NEFF TO GREEN	REVIEW OF MS CORES
030381	022781	Walley	MS	032081	Barainca	LO, BARANICA TO WALLEY	CONGRATULATIONS ON PRESENTATION
		Cochran	MS	032781	DOE/NPO	LO, EDWARDS TO COCHRAN	GULF SALT DOME STUDIES
040281	033081	Green	MS		Neff		MAHLON GATES TESTIMONY, TIME ARTICLE, ETC.
040281	033081	Green	MS	052981	Neff	LO, NEFF TO GREEN,5/29[1]	CONCERNS CERTAIN MISSISSIPPI AND PERRY COUNTY OFFICIALS REGARDING THE NWTSP
042081	041581	Barlow	MS	050481	Neff		REQUEST FOR SALARY RANGE OF MANAGER OF NUCLEAR ENERGY AND NUCLEAR WASTE
04226.	042081	Montgomery	MS	051981	Neff	LO,JN- MONTGOMERY	REQUEST FOR COPY OF RESPONSE BEING SENT TO MR. JOHN W. GREEN OF MISSISSIPPI
041781	041581	Lott	MS	052981	Neff	LO, NEFF TO LOTT[2]	TRANSMITTAL OF LETTER FROM GREEN IN REGARD TO NUCLEAR WASTE STORAGE IN MISS
050481	050481	Ball	MS	NAR	Edwards		REQUEST FROM BALL ASKING INDIVIDUALS TO PARTICIPATE IN PROGRAM AND SERVE ON PANEL
051281	042981	Walley	MS	052781	Neff	MEC&KELLER COPIES	THANK YOU FOR THE SUPPORT OF DAVID AL[illegible]IZ
051481	051181	Barlow	MS .	060381	Neff	LO,JLE TO BARLOW	REQUEST FOR JOB DESCRIPTION OF PROGRAM ENGINEER/GEOSCIENTIST,SUPERVISORY ENGINEER/GEOSCIENTIST AND PROGRAM MANAGER
051881	051581	Green	MS	NAR			RESCHEDULE OF NUCLEAR LEGISLATIVE FORUM MEETING FOR JUNE 15,1981
061881	061881	Forsythe	MS	062581	Barainca	TELEPHONE CONVERSATION	QUESTIONS FOR DOE OFFICIALS SPEAKING TO MISSISSIPPI LEGISLATORS,HATTIESBURG, JUNE 15,81
061981	061581	Crawford	MS	062281			JACKSON CITY PLANNING BOARD REQUEST COPY OF ENVIRONMENTAL CHARACTERIZATION REPORT FOR THE GULF REGION FEB,1981
070681	070281	Ball	MS	071781	Ball	LO, NEFF TO BALL, 7/17	THE POSITION OF THE STATE OF MISSISSIPPI WITH REGARD TO THE SITE CHARACTERIZATION PLAN IN THE GULF INTERIOR REGION

[1] REPLY CONCERNED AN INTERIM MEETING AS WELL AS LISTED LETTER; ALSO COORDINATED WITH DOE/HQ

[2] REPLY COORDINATED WITH DOE/HQ

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
070781	070381	Green	MS	071581	Neff	LO, NEFF TO GOLDSMITH	COPIES OF CORRESPONDENCE FROM TECHNICAL COMMUNITY RE JUNE 25 MEETING
071481	071381	Green	MS	NAR	Neff		LETTER STATING MS IS SATISFIED WITH CURRENT MAKEUP OF LETCO
072781	072281	Cochran	MS	NAR	Fawcett		CONCERN REGARDING THE DOE'S INVESTIGATION OF THE SALT DOMES IN MISSISSIPPI AS POSSIBLE SITE FOR STORAGE OF NUCLEAR WASTE MATERIALS
072781	072381	Ball	MS	NAR			REQUEST FOR A REPLY TO TWO LETTERS PREVIOUSLY WRITTEN
073181	073181	Ball/Green	MS	032582	Neff	LO, NEFF TO BALL[6]	TRANSMIT COMMENTS FROM MISSISSIPPI OFFICIALS ON ONWI-109
081381	081081	Rahaim	MS	082082			A FEASIBILITY ANALYSIS OF SELECTED SOLAR SWIMMING POOL SYSTEMS FOR THE CITY OF RICHTON
081481	081281	Green	MS	032582	Neff	LO, NEFF TO BALL[3]	COMMENTS ON ONWI-109
082581	082481	Lott	MS	101481	Edwards	LO, NEFF TO SMILEY[4]	REQUEST TO EDWARDS TO FURNISH REPORT ON SUBCONTRACTORS EMPLOYED BY BATTELLE
083181	082681	Ball	MS	091481			EXTENSION OF DOE GRANT NO.DE-FG44-80R410 82 AND REQUEST FOR ADDITIONAL SUPPORT FUNDS
090381	090381	Green	MS	0	Neff	5	REQUESTING INFORMATION RELATIVE TO THE H.A.DAHL-MORRISON REPORT
100581	090481	Greer	MS	NAR	Neff	NAR	RESOLUTION PASSED BY THE COUNTY SUPERVISORS OF MISSISSIPPI
102181	101581	Rauch	DOE/HQ	101582	Nunn	DOE/HQ'S ACTION	RAUCH TO SENATOR NUNN RE LETCO PROTEST
102281	101681	Meyers	DOE/HQ	101681	Lott	DOE/HQ'S ACTION	USE OF CYPRESS CREEK SALT DOME IN PERRY COUNTY FOR NUCLEAR WASTE REPOSITORY
110581	110581	Meyers	DOE/HQ		Ball	NAR	LC,MEYERS TO BALL, RE LACK OF FORMAL AGREEMENT & LC, MEYERS TO BLESSEY RE BILOXI SYMPOSIUM

[3] MISSISSIPPI OFFICIALS TOLD THAT COMMENTS WOULD BE ADDRESSED IN RE-WRITE OF FINAL REPORT (RELEASED 3/25/82). MISSISSIPPI PROVIDED WITH REGULAR UPDATES BY PHONE OR IN PERSON

[4] COORDINATED WITH ONWI AND HQ STAFF. FINAL SUBMISSION COMPLETED ON 10/14. UNCERTAIN OF DATE DOE/HQ FORWARDED TO LOTT

[5] DISCUSSED WITH STATE OFFICIALS IN PERSON. COPY OF STUDY TO BE FURNISHED WHEN ERTEC COMPLETES STUDY. GREEN TOLD WHERE TO WRITE FOR COPY OF REPORT

[6] MISSIPPI OFFICIALS TOLD THAT COMMENTS WOULD BE ADDRESSED IN RE-WRITE OF FINAL REPORT (RELEASED 3/25/82). MISSISSIPPI PROVIDED WITH REGULAR UPDATES BY PHONE OR IN PERSON

308 BEST DOCUMENT AVAILABLE

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
110981	110681	Green	MS	110981	Neff	LO, NEFF TO GOLDSMITH	REQUEST FUNDING FOR PERRY COUNTY CITIZENS TO ATTEND NWTS INFO MEETING
120781	120281	Green	MS	NAR	Baillieul	NAR	RECEIPT OF RESPONSES TO QUESTIONS PRESENTED AT THE LEGISLATIVE FORUM
121481	121481	Ball	MS	031782	Neff	LO, NEFF TO BALL[7]	PROPOSAL TO ALLOW THE STATE OF MISSISSIPPI TO CONTINUE CONSULTATION AND CONCURRENCE PROCESSES ON THE NATIONAL WASTE TERMINAL STORAGE PROGRAM
121781	UNDT	Goldsmith	ONWI	122381	Neff	LO, NEFF TO BLESSEY	REQUEST FOR COPIES OF THE AREA CHARACTERIZATION REPORT-MAYOR OF BILOXI
012182	012182	Green	MS	NAR	Neff	NAR	TECHNICAL VISIT TO THE WIPP SITE AND DOE ALBUQUERQUE OPERATIONS OFFICE
012582	012282	Coffman	DOE/HQ	020882 ,	Neff	TRANSMIT DOCUMENT	MISSISSIPPI AND DEPARTMENT OF ENERGY "PRINCIPLES OF AGREEMENT"
021682	021282	Ball	MS	NAR	Neff	NAR	ACKNOWLEDGE RECEIPT OF RESPONSE TO "PRINCIPLES OF AGREEMENT BETWEEN DOE AND THE STATE OF MISSISSIPPI"
021882	021782	Green	MS	NAR	Neff	NAR	MISSISSIPPI ISSUES BOOKLET COMMENTS
030182	022682	Lett	MS	030582	Baillieul	RESPONSE BY PHONE	MISSISSIPPI DOE TRAINING
030182	022582	Green	MS	0	Baillieul	LO, NEFF TO GREEN[8]	REQUEST FOR ONWI DOCUMENTS
030582	030282	Green	MS	031982	Neff	MAILED DOCUMENT	REQUEST FOR SIX ADDITIONAL COPIES OF ONWI-213, STUDY OF SALT DOMES
031582	031582	Ball	MS	031582	Neff	REVISION TO GRANT	FINANCIAL STATUS OF THE MISSIPPI DOE&T GRAN
032982	032682	Ball	MS	NAR	Neff	NAR	STATE OF MISSISSIPPI COMMENTS ON THE SITE CHARACTERIZATION PLAN-ONWI 293
042682	042182	Green	MS	050582	Neff	GEORGE TO GREEN	HOWARD LETT FINAL DRAFT-"A REPORT ON CITIZE PARTICIPATION IN THE NUCLEAR WASTE STORAGE PROGRAM IN PERRY COUNTY"

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[7] SENT TO ONWI AND HQ FOR REVIEW. DELAYED BY XMAS HOLIDAYS AND LEGAL ANALYSIS OF OUR RESPONSE

[8] CONTINUING ACTION. INITIAL SET OF DOCUMENTS SENT BY SECRETARY WITHIN 30 DAYS, OTHER DOCUMENTS SENT UPON AVAILABILITY TO DOE

NEW HAMPSHIRE STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
021881	021881	Smith	NH	022581	DOE/NPO	LO, WUNDERLICH TO SMITH	COPY OF DAMES AND MOORE REPORT
083181	082781	Davis	NH	092481	Neff	MEETING HELD	PROPOSED STUDIES BY DOE FOR THE GEOLOGIC DISPOSAL OF NUCLEAR WASTES
100581	100281	Davis	NH	120481	Lahoti	LO, NEFF TO DAVIS[1]	INFORMAL PROPOSAL FROM OFFICE OF NEW HAMPSHIRE STATE GEOLOGIST
120781	120381	Davis	NH	052082	Lahoti	LO,	PROPOSAL FOR THE STATE OF NEW HAMPSHIRE
	101480	Gallen	NH	120280 &	DOE/NPO	PHONE CONVERSATION, NEFF/	ATTENDING ANNUAL MEETING BRIEFING DATES

[1] WORK IN NEW HAMPSHIRE HAS CONTINUED THROUGH INFORMAL AND FORMAL COMMUNICATION WITH NO GAPS. THE FINAL PROPOSAL HAS BEEN AGREED ON, WAS SENT IN, AND IS IN THE APPROVAL PROCESS.

NEW JERSEY STATE CORRESPONDENCE - JULY, 1980 - APRIL, 198

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
021281	021281	Forsythe	NJ	020181	DOE/NPO	LO, NEFF TO FORSYTHE	COPIES OF REPORTS AND BACKGROUND MATERIAL:
052981	052181	Tyler	NJ	061881	Neff	LO, NEFF TO TYLER,6/18	ENTERING SECOND PHASE OF PROGRAM OF GEOLOGIC INVESTIGATIONS

NEW YORK STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
		Fakundiny	NY	010581	Contractor	LO,CONTRACTOR TO FAKUNKINY	TRANSMITTAL OF REPORTS AND BACKGROUND MATERIALS

OHIO STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
020482	020382	Teater	OH	0	Neff	IN PROGRESS	INTERNATIONAL SALT COMPANY TO DEVELOP DATA IN THE CLEVELAND MINE

PENNSYLVANIA STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
		Socolow	PA	100880	DOE/NPO	LO, NEFF TO SOCOLOW	COPIES OF REPORTS

TEXAS STATE CORRESPONDENCE - JULY, 1980-APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
061181	052681	Clements	TX	062581		NAR	GOVERNOR CLEMENTS DOES NOT WISH TO PURSUE A BRIEFING REGARDING THE U.S. DEPARTMENT OF ENERGY'S GEOHYDROLOGIC SCREENING IN THE BASIN AND RANGE PROVINCE
062981	062581	Herrington	TX	032582	Neff	LO, NEFF TO HOLLOWAY[1]	REVIEW OF ONWI-194 BY TEXAS HISTORICAL COMMISSION
102081	101581	Holloway	TENRAC	110281	Neff	LO, NEFF TO HOLLOWAY	FOLLOW-UP OF TELEPHONE CONVERSATION
110481	103081	Fisher	TBEG	110581	Neff	LO, NEFF TO GOLDSMITH[2]	REVIEW OF "AREA GEOLOGICAL CHARACTERIZATION REPORT, PALO DURO AND DALHART BASINS, TEXAS"
113081	112581	Fisher	TX	0	Neff	[3]	REVIEW OF DRAFT COPY OF PERMIAN BASIN LOCATION RECOMMENDATION REPORT (ONWI-288)
120881	120781	Holloway	TENRAC	I	Neff	INCOMPLETE[4]	DOCUMENTS ON THE PALO DURO BASIN FOR TENRAC REVIEW:JON
011582	UNDT	Mercer	TX	032382		LO, NEFF TO MERCER [5]	A RESOLTION FROM CITIZENS OF BRISCOE COUNTY
012582	012282	Santiest	TX	NAR	Neff	NAR	CONFIRM VISIT TO AMARILLO COLLEGE ON FEB.4
020882	020482	Santieste	TX	NAR	Neff	NAR	THANK YOU LETTER
021182	020882	Pate	TX	NAR	Neff	NAR	COPY OF TESTIMONY BY TEXAS FARM BUREAU
021682	021082	Holloway	TX	NAR	Neff	NAR	COMPLETED REVIEW OF "AREA ENVIRONMENTAL CHARACTERIZATION REPORT OF THE DALHART AND PALO DURO BASINS IN THE TEXAS PANHANDLE (ONWI-102)"
021882	021682	Madewell	TX	NAR	Neff	NAR	VISIT TO NUCLEAR WASTE DISPOSAL SITE
031582	031282	Fisher	TBEG	NAR	Neff	NAR	COMMENTS ON ONWI 292
031582	031282	Fisher	TBEG	NAR	Neff	NAR	SUMMARY OF MEETINGS HELD ON FEB 17 & 18
032682	032382	Holloway	TENRAC	NAR	Neff	NAR	REVIEW OF ONWI 292
032682	032382	Madewell	TX	NAR	McClain	NAR	THANK YOU LETTER FROM TULIA MAYOR
032982	032682	Fisher	TBEG	NAR	Neff	NAR	TBEG WILL DEFER FORMAL COMMENT ON ONWI 288:SIMPKINS
041282	040682	Fisher	TBEG	NAR	Neff	NAR	TRANSMITTING REPORT
041282	040882	Holloway	TENRAC	NAR	Neff	NAR	CONCERN RE LOCATION RECOMMENDATION REPORT
041982	041482	Holloway	TX	NAR	Neff	NAR	LETTER REGARDING CORRESPONDENCE BETWEEN CLEMENTS AND MATHESON

[1] NO RESPONSE TO REVIEW WAS REQUESTED. COMMENTS WERE CONSIDERED IN RE-WRITE OF REPORT (RELEASE OF FINAL REPORT WAS ON 3/25/82)

[2] REVIEW OF SUBSEQUENT DRAFTS NECESSARY

[3] LRR REVIEW COMMENTS FORWARDED TO ONWI TO INCORPORATE INTO DOCUMENT. RESPONDED BY PHONE TO FISHER THAT THIS WAS BEING DONE. REVISED LRR SENT TO FISHER IN FEBRUARY

[4] SHOULD BE NAR; BUT WE HAVE SENT DOCUMENTS TO STATE IN SEQUENCE (SCR PENDING); PUBLIC MEETING WERE HELD WITH GEORGE, DOE/HQ AS DOE PROGRAM REPRESENTATIVE; PRESS RELEASE AMENDED AS REQUESTED; AND PLANS AND SCHEDULES SENT TO STATE (2-11-82 EDWARDS TO CLEMENTS LETTER; 2-3-82 NEFF TO HOLLOWAY LETTER)

[5] TWO AND A HALF MONTHS TO REPLY. RECEIVED 400 PERSONAL LETTERS AND A NUMBER OF PETITIONS IN THE SAME PERIOD. STAFF SHORTAGE MADE TIMELY RESPONSES DIFFICULT

UTAH STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
020981	020681	Howard	UT	031781	Neff	LO, NEFF TO HOWARD	DESIGN CRITERIA FOR REPOSITORIES & RESULTS OF AVERY ISLAND TESTS
031081		Weidner	UT	031681	Casey	LO, NEFF TO WEIDNER	NWTS ACTIVITIES
	123080	Downard	UT	011281	Casey	LO, NEFF TO DOWNARD	REQUEST FOR PUBLICATIONS
050881	050481	Mason	UT	060481	Neff	LO, NEFF TO MASON [1]	UTAH NUCLEAR WASTE REPOSITORY TASK FORCE TO DISCUSS HOW THE NWTS PROGRAM WORKS IN THE GULF COAST
052181	051981	Farley	UT	061181	Neff	LO,JON TO FARLEY	REQUEST FOR PUBLIC HEARINGS IN UTAH
070681	063081	Mason	UT	070681	Neff	COMMENTS PROVIDED TO ONWI	COMMENTS ON ONWI 92
081781	081181	Mason	UT	031582	Casey	LO, NEFF TO MASON	UNSOLICITED PROPOSAL "STUDY OF POTENTIAL DEEP GEOLOGIC SALT STORAGE OF NUCLEAR WASTE IN SOUTHEASTERN UTAH"
101381	100981	BLM	UT	NAR			NO FURTHER COMMENTS ON THE PARADOX BASIN STUDY
112381	112081	Mason	UT	112481	Casey	LO, ENGLAND TO MASON	REQUEST TO PURCHASE RECORDER/TRANSCRIBER
120781	120381	Mason	UT	NAR	Neff	NAR	REVIEW OF ONWI-92 BY UTAH'S GEOLOGIC WORK GROUP
011182	010482	Christoffer	UT	012582	Neff		REQUEST RESPONSE TO ALLEGATION CONCERNING GIBSON SALT DOME
011182	123081	Mason	UT	I	Neff	INCOMPLETE[2]	REQUEST FOR FURTHER BUDGET NEGOTIATIONS
020382	022982	Mason	UT	NAR	Neff	NAR	LETTER COMMENDING CASEY'S WORK
020382	012782	Graham	UT	NAR	England	NAR	VOUCHER FOR PAYMENT
021682	021182	Christoffer	UT	052482	Neff	LO, NEFF TO MASON	REQUEST FOR DEPARTMENT OF ENERGY/CONTRACTOR ACTIVITY INFORMATION
021682	021082	Boswell	UT	NAR	Casey	NAR[3]	DOCUMENTS FOR OUR NUCLEAR WASTE LIBRARY
022282	021782	Matheson	UT	0	Neff	LETTERS WRITTEN[4]	COMMENTS OF THE NWRTF ON ONWI 301
030482	030382	Mason	UT		Neff	ON HOLD[5]	MODIFICATION TO UNSOLICITED PROPOSAL
031582	030982	Black	UT	NAR	Casey	NAR	SAN JUAN COUNTY COMMISSION TO RESTATE ITS POSITION CONCERNING A NUCLEAR REPOSITORY NEAR GIBSON DOME
040582	040282	Dyner	UT	NAR	Casey	NAR	REQUEST TO SEND DOE DOCUMENTS DIRECTLY TO THE RESOURCE DEVELOPMENT COORDINATING COMMITTEE
051482	040782	Mason	UT	052482	Casey	LO, NEFF TO MASON [6]	REQUEST FROM ATWOOD FOR IMPLEMENTATION OF PROCEDURE FOR MX SITING
042282	041982	Donaldson	UT	050782	Neff	SENT TO ONWI	ADDITION TO THE UTAH NUCLEAR WASTE REPOSITORY TASK FORCE

[1] BRIEFING HELD FOR TASK FORCE ON 6/18

[2] SEVERAL LETTERS HAVE BEEN EXCHANGED, GRANT NOT YET AWARDED, PENDING RESOLUTION OF ISSUES AND FINALIZATION OF PAPERWORK BY UTAH

[3] UNCLEAR REQUEST - INFORMATION NOT READILY AVAILABLE IN CONDENSED FORM AND THEREFORE REQUIRED ORIGINAL WORK; NO PRIORITY STATED IN REQUEST

[4] RESPONSE TO COMMENTS WILL BE INCORPORATED INTO APPENDIX TO 301; THEREFORE AWAITING NEXT PRINTING OF DOCUMENT BEFORE UTAH WILL SEE RESPONSES

[5] RELATED TO [2]

[6] REQUEST WAS SOMEWHAT UNCLEAR AND WAS COMBINED WITH [3]

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VERMONT STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
052881	052581	Whittaker	VT	061181	Neff	AWARDED 8/17/81	FOR THE PURPOSE OF PROVIDING OVERVIEW CAPABILITY TO THE STATE OF VERMONT
070781	070281	Braithwaite	VT	071481	Neff	LO, TO BRAITHWATE	REQUEST FOR DOE TO SPEAK AT PUBLIC INFORMATION SERIES ON AUG.20

WISCONSIN STATE CORRESPONDENCE - JULY, 1980 - APRIL, 1982

Date Rec'd	Inc Cor Date	Author	Corp Desig	Date Completed	Addressee	How Completed	Subject/cc
111381	111081	Hendrickson	WI	NAR	Neff	LO, NEFF TO MUNTS	UNIVERSITY OF WISCONSIN-EXTENSION PROPOSAL FOR A HIGH AND LOW-LEVEL RADIOACTIVE WASTE INFORMATION
031782	031582	Woodbury	WI	0	Wunderlich	IN PROGRESS[1]	STATE OF WISCONSIN PROPOSAL TO CONDUCT A PUBLIC INFORMATION PROGRAM ON RADIOACTIVE WASTE
033182	032982	Woodbury	WI	NAR	Wunderlich	NAR	PUBLIC INFORMATION PROPOSAL
Previous Conversations		Woodbury	WI	111280	DOE/NPO	LO, NEFF TO WOODBURY	ACRES AMERICA REPORT ON PIEDMONT REGION

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[1] A PROBLEM IN WISCONSIN REQUIRED A CHANGE IN THEIR PROPOSAL. NEGOTIATIONS CONTINUE. THEIR NEW PROPOSAL WAS SENT TO US MARCH 17, WE SENT IT TO ONWI ON APRIL 15, AND ONWI REPLIED ON JUNE 3.

Nevada Nuclear Waste Storage Investigations - Correspondence

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Nevada						
-	Mar 28, 1979	DOE-NVO Manager (Gates)	-	Gov. List	-	NTS Groundwater Info
-	Oct 15, 1979	S. Hohmann, NV Legislative Counsel Bureau	Nov 16, 1979 & May 1, 1980	Gates	Letters, Gates to Hohmann	Briefing/tour and document request
-	May 30, 1979	R. Hill, NV State Planning Coordinator	N/A	Gates	N/A	Thank you for receipt of program document
-	Jan 27, 1981	Gates	-	Gov. List	-	Status of MRS effort at NTS
-	Mar 3, 1981	Gov. List	May 5, 1981, Oct 16, 1981 & Jul 24, 1981	Gates	Briefing and Draft report transmittals (Kearney, EEI to List)	MRS effort at NTS
-	Sept 10, 1981	S. Hohmann	N/A	DOE-NV Project Office Director (Nelson)	N/A	Thank you for meeting participation
-	Feb 18, 1982	K. Hayes, NV Legislature	Mar 5, 1982	Gates	Panel participation	Request for panel participation
-	Telecon 4/82	R. Loux, NV State Dept. of Energy	May 27, 1982	DOE-NV Staff	Letter, Gates to NV State Dept. of Energy	State participation in NTS program
-	May 19, 1982	Gov. List	Response in preparation	Gates	Response in preparation	Comprehensive NTS program information request

Basalt Waste Isolation Project - Correspondence

Date Rec'd	Date of Letter	Author	Date Completed	Addressee	How Completed	Subject
Washington						
-	Apr 19, 1979	6/4/79	Jun 4, 1979	DOE-RL Mgr (Fremling)	Memo, Fremling, to Ray	Intergovernmental Basalt Working Group
-	May 30, 1980	DOE-Fremling	-	Gov. Ray	-	Intergovernmental Basalt Working Group
-	Jan 30, 1981	DOE-Fremling	May 21, 1981	Gov. Spellman	Memo, Spellman to Fremling	Intergovenmental Basalt Working Group

Q. Can you explain how you expect the states to cooperate, if the states are consistently denied or refused pertinent information?

A. The Department is committed to a policy of state consultation and cooperation. This means that the DOE provides the affected states a partnership role in the NWTS siting process. After data is collected from DOE contractors, the resulting report receives stringent technical and peer review. In many cases, where there is an ongoing relationship of consultation and coordination between the state and DOE, DOE will often brief the state on the general content of the study and recommendations of the contractors. DOE then makes the draft report available to the state for comment. State comments are sought to improve the technical quality of the report, to verify pertinent information and to ensure that the report properly captures any special sensitivities existent within a state. The documents are then printed in final form taking cognizance of state comments and subsequently distributed to the general public. Though reports and documents generally are made available after DOE has conducted a review, some state agencies performing contract research for the Department will participate in the early technical review.

The Department maintains an information center for the NWTS Program at the Office of Nuclear Waste Isolation (ONWI Library) where all literature and program documents are available to the public. Additionally, DOE maintains a mailing list which provides all published reports of interest to public libraries and to interested citizens. Finally, DOE provides consultation and coordination funds to states via grants to assure that they have sources to review the DOE program and to participate in the consultation and coordinating process. Currently all the states having a salt basin under study received such funds and many granitic states also receive funds.

DOE personnel regularly make visits to state agencies involved in the program to share information, to answer questions and to plan program activities in the state. Public meetings are often held by state agencies with DOE staff participating. At the DOE-owned sites under investigation, tours are often conducted for public officials and interested citizens. At the Nevada Test Site, for instance, eighty-seven state government personnel toured NTS waste facilities in 1981. DOE has held an annual meeting for the past three years which has been dedicated to sharing NWTS program information with the public, the media, states and technical community. In many instances, DOE has provided the funds needed for state personnel to attend this meeting.

In every case the DOE has attempted to avoid conflict with an affected state. Where the potential for conflict arises, the Department has attempted to compromise to develop a position of mutual satisfaction. However, under its responsibility to manage the High Level Waste Disposal program, the Department cannot make compromises which affect the ultimate health and safety of the public or which result in inefficient use of Federal Funds.

Attached is a recent interview with Governor Clements of Texas where he states "Frankly, I have no complaints at this point," when asked if he is satisfied with DOE's activities in his State.

Based upon demonstrated responsiveness of the DOE to the states, as shown in the answer to question 2, the Department believes a cooperative arrangement between the states and the Federal government is achievable and will assure that a solution can be effected for high-level waste disposal.

Mr. **Markey**. I have got the program plan for Palo Duro Basin in Texas, which describes the documents promised to the State of Texas by January of 1982. None have been delivered. What are the documents? Area geological characterizations, environmental reports, location recommendation reports, site characterization reports, the principal bore-hole decision.

All of these things have not been forthcoming, although they have been promised with a time chart up here to the States by the beginning of this year.

Secretary **Edwards**. Mr. Markey, when was that? This is not the kind of service we expect to give to States. Being a former Governor, I am very sensitive to the needs of the States, and I am glad you brought that to my attention. We will correct it. It is not the type of thing that we would want to do.

I feel very strongly that the States should know exactly what is going on in their States at all times, from the day we move in to the day we move out. So we will take steps to correct any shortfalls. If you will bring them to my attention, we will certainly correct them.

[The following information was received:]

I provided Governor Clements in a March 11, 1982, letter with a detailed work schedule for the studies being conducted in the Palo Duro Basin of the Texas Panhandle. Texas State agencies—specifically, Texas Bureau of Economic Geology (TBEG) and Texas Energy and Natural Resources Advisory Council (TENRAC)—were closely consulted in developing the schedule.

All documents identified in the schedule have been provided to the State except those that have been delayed because of work slippages in the program's research schedule. All anticipated delays have been relayed and explained to the relevant State agencies. A few additional delays may result from continued negotiation and consultation with the State as to the technical content of the document or the investigative work that must be accomplished. TBEG and TENRAC have been notified of all delays.

March 11, 1982

Honorable William P. Clements
Governor of Texas
Austin, Texas 78711

Dear Bill:

On two occasions, you have written to request specific plans for Department studies of the suitability of the Palo Duro Basin for siting a nuclear waste repository. I could only provide an interim response at the time, while our planning efforts continued in consultation with appropriate State agencies. Department staff have since discussed your request for planning information with Dr. Milton Holloway, Executive Director, Texas Energy and Natural Resources Advisory Council (TENRAC) in order to determine an appropriate scope and format. I am pleased to provide you with the enclosed charts and some explanatory comment.

This planning information reflects the Department's current intentions. Budget constraints, technical findings, and other matters can influence a plan, of course, and any future revisions will be provided to TENRAC. It is understood that the Department's program officials will continually consult with appropriate Texas State agencies with respect to the "fine structure" of activities supporting this plan.

The current schedule for the National Waste Terminal Storage program, shown in Figure 1, shows that we anticipate that ultimately one candidate site having a salt host rock will undergo the final most extensive stage of site examination. That final stage is expected to involve at-depth testing by means of a drilled exploratory shaft of approximately 10-foot diameter. If a site in the Palo Duro basin is eventually selected for an exploratory shaft in late 1983, then field exploration activities (i.e., geotechnical, environmental and socio-economic characterization) and at-depth testing could continue for as long as an additional 6 years (1989/90). In addition to salt rock systems, the flood basalts of the Pasco Basin in Washington State and tuff under the Department's Nevada Test Site are also being studied as candidates for repository siting.

The Department's near term program plan (1982/83) for the Palo Duro Basin is represented in Figure 2. Milestones are provided in Figure 2 for key field activities, for the series of field exploration documents that support a determination whether an exploratory shaft is justified in that region, and for State review and Department decisions along the way. Specific geotechnical activities include the six hydrologic/stratigraphic drill holes that are to be completed prior to the report recommending a specific site for an exploratory shaft. This drill test program was developed in discussions with all parties (the Department, Battelle, the Texas Bureau of Economic Geology and TENRAC). There is also a principal borehole indicated in Figure 2. This special drilling for stratigraphic core and hydrology data will reduce the costs and contingencies for engineering and construction of the exploratory shaft, if the two are not too far separated.

Key decision documents will be forwarded to TENRAC to insure that the State of Texas has the opportunity to review the technical data base as well as the recommendations being made by Department contractors. Before transmitting these reports to the State, the Department will determine that they are adequate for the review intended. The current schedule allows for TENRAC's review of each document, as indicated on the figure. TENRAC is currently reviewing the Area Geologic Characterization Report, Area Environmental Characterization Report, and the Location Recommendation Report. Final decisions will not be made until the end of the review period, and the Department will consider any review comments received from the State or others in arriving at its decisions. The comments made during these reviews will be incorporated in the documents before the documents are released to the public.

If I can assist you further with regard to this important program, please let me know.

Sincerely,

James B. Edwards

James B. Edwards

Enclosures

PROGRAM PLAN FOR FIRST REPOSITORY
January, 1982

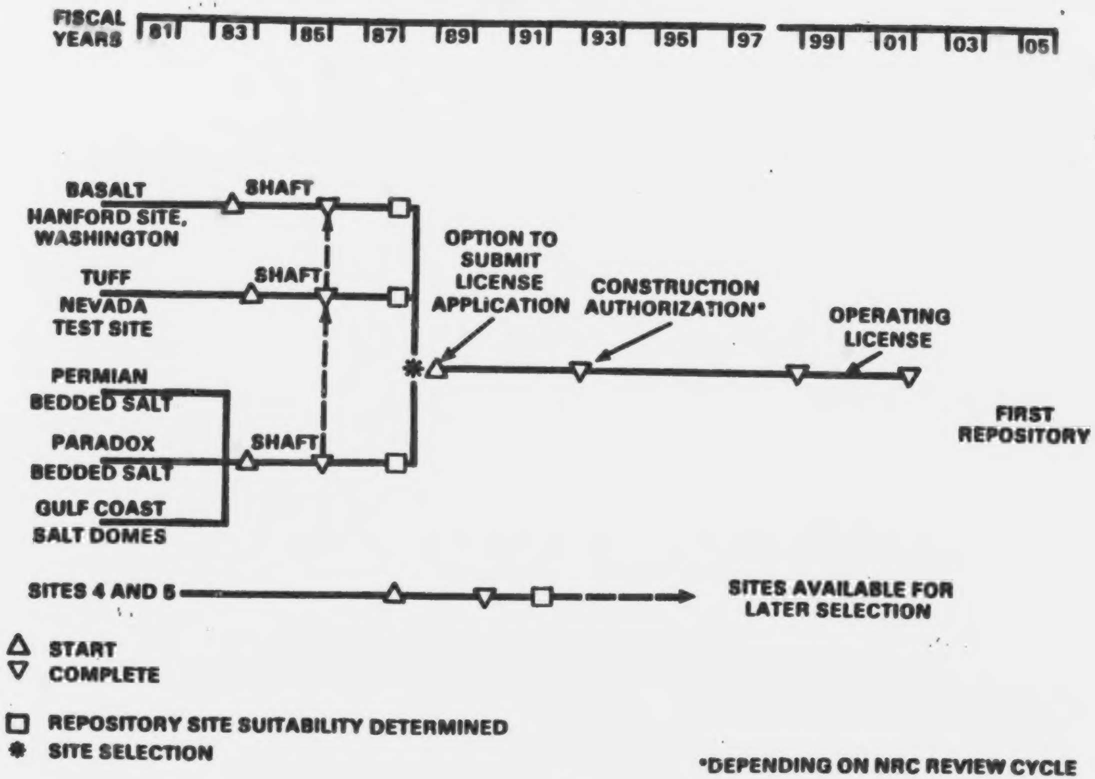
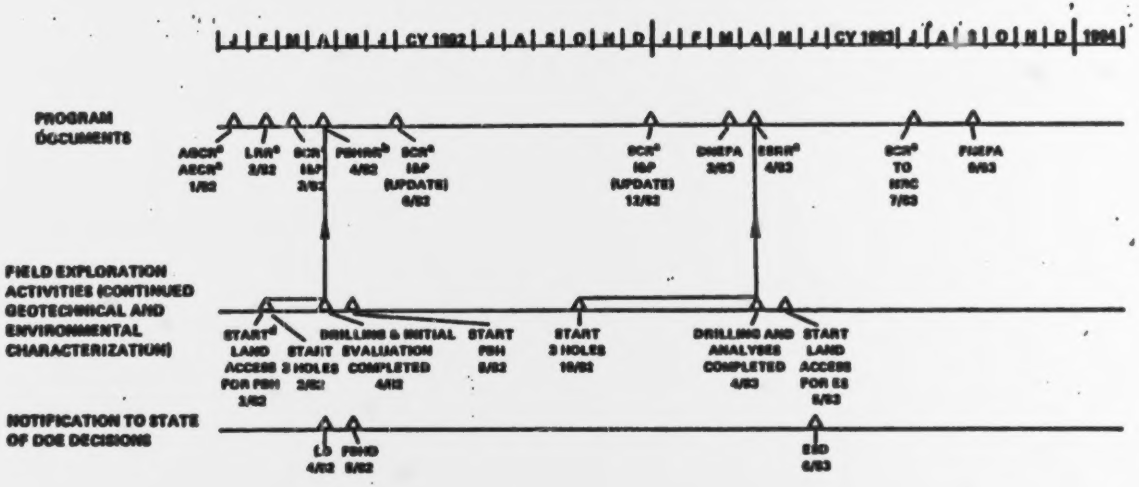

FISCAL YEARS
81
83
85
87
89
91
93
95
97
99
01
03
05
BASALT
HANFORD SITE, WASHINGTON
SHAFT
TUFF
NEVADA TEST SITE
SHAFT
PERMIAN BEDDED SALT
PARADOX BEDDED SALT
SHAFT
GULF COAST SALT DOMES
OPTION TO SUBMIT LICENSE APPLICATION
CONSTRUCTION AUTHORIZATION*
OPERATING LICENSE
FIRST REPOSITORY
SITES 4 AND 5
SITES AVAILABLE FOR LATER SELECTION
△ START
▽ COMPLETE
□ REPOSITORY SITE SUITABILITY DETERMINED
✱ SITE SELECTION
*DEPENDING ON NRC REVIEW CYCLE

FIGURE 1.

PROGRAM PLAN FOR PALO DURO BASIN, TEXAS
JANUARY 1982



AGCR – AREA GEOLOGIC CHARACTERIZATION REPORT
AECR – AREA ENVIRONMENTAL CHARACTERIZATION REPORT
LRR – LOCATION RECOMMENDATION REPORT
SCR – SITE CHARACTERIZATION REPORTS (FOR NRC)
SCR I&P – DRAFT SITE CHARACTERIZATION REPORT ISSUES AND PLANS
PBHRR – PRINCIPAL BOREHOLE RECOMMENDATION REPORT
ESRR – EXPLORATORY SHAFT RECOMMENDATION REPORT
DNEPA – DRAFT NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENT
FNEPA – FINAL NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENT

LD – LOCATION DECISION. DOE NOTIFIES STATE OF PENDING DECISION 10 DAYS BEFORE DECISION IS EXPECTED. NOTICE OF DECISION IS SENT TO STATE.
PBHD – PRINCIPAL BOREHOLE DECISION. DOE NOTIFIES STATE OF PENDING DECISION 10 DAYS BEFORE DECISION IS EXPECTED. NOTICE OF DECISION IS SENT TO STATE.
ESD – EXPLORATORY SHAFT DECISION. DOE NOTIFIES STATE OF PENDING DECISION 10 DAYS BEFORE DECISION IS EXPECTED. NOTICE OF DECISION IS SENT TO STATE.

[a] PREPARED BY BATTELLE BASED ON DATA GENERATED BY SWEC, NUS, AND TBEG; START OF REVIEW BY DOE AND STATE OF TEXAS. STATE REVIEW IS 45 DAYS, PRIOR TO DOE ACCEPTANCE. STATE COMMENTS INCORPORATED INTO DOCUMENT PRIOR TO FINAL RELEASE TO PUBLIC.

[b] AVAILABLE TO STATE 10 DAYS BEFORE DOE DECISION TO PROCEED.

[c] AVAILABLE TO STATE AT SAME TIME SUBMITTED TO NRC.

[d] INITIATE NEGOTIATIONS WITH MULTIPLE LANDOWNERS IN SWISHER AND DEAF SMITH COUNTIES TO BEGIN ENVIRONMENTAL SURVEYS AND TO OBTAIN OPTIONS FOR ALTERNATE DRILL SITES FOR PBH (ONLY ONE OPTION IS EXPECTED TO BE EXERCISED AFTER PBHRR HAS BEEN APPROVED BY DOE AND STATE HAS BEEN NOTIFIED PER PBHD).

FIGURE 2.

BEST DOCUMENT AVAILABLE

Excerpted from May 1982

The Radioactive Exchange

To promote the exchange of views and information on radioactive waste management

Edward L. Helminski, Publisher — PO Box [illegible] — Washington, DC [illegible] [illegible]

Views

TEXAS GOVERNOR WILLIAM CLEMENTS ... ON HIGH LEVEL WASTE POLICY

Governor, the Senate passed high level waste bill provides that one house of the legislature must support a state's objection to the siting of a high level waste repository in order for that objection to stand. You and the Governors' Association, however, have been advocating a two-house override requirement. Are you willing to accept the Senate proposal or will you work to get the House to adopt your proposal?

I will work for the two house override. I will be in touch with our Texas delegation and will try to convince them that we need the two house process. I will also be trying to get the administration to along with our views.

With regard to DOE high level waste activities in your state, are you satisfied the way things are going now?

We've been in very close touch with Secretary Edwards and his staff up there and I think we're being kept fully informed as to what they're doing and how they're doing it and what their time schedule will be. Frankly, I have no complaints at this point.

Your policy statement calls for written agreement between the Department and the states; are you in the process of negotiating the written agreement?

Yes, we already have in writing from Secretary Edwards, representing the DOE, the kind of time schedule information and the sort of concurrence that I'm talking about.

Do you expect to get a written agreement sometime in the near future?

Yes, I would.

How have you organized your state program to work with the Department of Energy?

Our Texas Energy and Natural Resources Advisory Committee, called TENRAC, is charged with the responsibility, for overseeing our state's activity. The policies that I'm articulating this morning are the official policies of TENRAC. Milton Holloway, our executive director of TENRAC, can keep you up to date on our actions.

What in your opinion are the key elements of the repository program as far as the states are concerned?

What I'm looking for is consultation and concurrence. I think those are two very key words for the states. Putting this process in place will put back the absolute faith element in our desired relationship with the federal government.

Has there been any large scale opposition to DOE activities in the state?

No, there hasn't been. There's been some very serious interest, investigation and questioning, but when you use the term opposition the answer is no.

Governor, what about defense waste, do you support inclusion of defense waste along with commercial waste in an overall high level waste management program?

I think that defense waste is really different from commercial waste. I think that's something, that over the next several years as testing, evaluation, and research goes forward, that has to be resolved in some kind of a reasonable and equitable manner. As you undoubtedly know, most of our high level waste at this time is defense waste. That will change, of course, as time goes forward and we begin to see the waste that comes out of our nuclear plants, but right now most of the waste we have that has to be considered is in fact, defense department waste.

I think that this issue just has to be sorted out in a fair and equitable way. It's easy enough for me as Governor of the state of Texas to say that we have a responsibility in Texas to take care of our garbage that we are, in fact creating, as time goes forward, but when we start talking about somebody else's garbage that puts a different light on it. Now there are the black and white sides of the issue. But then you have the gray side. Defense department garbage is everybody's garbage and we start talking about the waste that comes out of our nuclear weapons systems you're talking about something that belongs to everybody. And national security is a national issue. Should this waste be commingled, and should the states and each and everyone carry a part of that responsibility. It's a very interesting question and it has not been resolved yet, and in fact it has not even been adequately debated. Some people know about it, you know about it and I know about it, but most people are not aware of it. There's an unresolved issue and certainly I am of the opinion that it is going to have to be settled, and we might as well face up to it.

I understand that the state has provided a good deal of support for the activities that your agencies had to undertake in working with the Department of Energy. What has been your state's contribution?

We have some very knowledgeable people in Texas who have been willing to give of their talent and expertise in energy to try to help solve this issue on a reasonable and equitable basis because it is inevitable that sooner or later we all, and I mean all, everybody across the country are going to have to face up to this and we're going to have to come to acceptable solution. And I think it is incumbent on all of us to address this national issue, which it really is, in a reasonable fashion. We've tried to make our people available and we've tried to cooperate to the greatest extent we can. And I do think that we've made a contribution and I'm proud of our contribution. We have covered the costs of these state officials who are working on our behalf with the Department of Energy and are happy to do so.

Governor, in addition to the state role and the question of defense waste, is there any other element of the H.L.W. repository program that you would view as a key factor in achieving a successful program?

Yes, I am of the opinion that retrievability should be a key design factor for a final repository. It needs to be evaluated to be sure, but I think it is very important to be able to retrieve this material, so if we decide, we can reuse it. In my mind we should build a technically advanced type of geological repository deep underground that will allow us to retrieve the material. I am of the opinion that over time, this material can be used over again and again. I think this would be the most cost effective approach.

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Mr. **Markey**. The States have been receiving their information from the Department of the Interior by fourth-class mail, which I think is giving an indication to the States as to the way in which they are going to be treated once this bill is passed. That is from Governor Clements in Texas.

Secretary **Edwards**. This may be. You said Interior. Did you mean Energy, Department of Energy?

Mr. **Markey**. Department of Energy, yes.

Secretary **Edwards**. We are trying to save money over there, but I didn't know we had gotten to that point.

Mr. **Markey**. The issue of military waste, again, is a very difficult one for those of us who believe that we need a comprehensive nuclear waste program for this country. We have a very serious problem. We have one which has built up over the last 37 years, and one which apparently will not be dealt with in this bill at all.

Ninety percent of the problems will not be dealt with. Many people believe that this bill is nothing more than a device which is designed to take care of a public relations problem which the private sector has. We are really not talking about a comprehensive nuclear waste bill here. We are talking about a private sector bailout of a problem which the industry has had in dealing with the nuclear waste problem, without really comprehensively dealing with the overall nuclear waste problem which we have in this country. The problem is that 90 percent of the waste has been generated by the defense sector.

And what we are talking about right now, whether there is more or less radioactivity in defense or civilian waste, is a very serious health and safety problem for this country. That problem will go unresolved. We are going to pass the buck again onto the next generation, once we pass this bill, because it is very unlikely that we are going to revisit this issue.

We are going to deal with the private sector problem, the public relations problem of having some headline in the newspaper read this year that nuclear waste bill has been passed. In fact, we will be deceiving the public, because we will not have passed a nuclear waste bill that deals with the nuclear waste problem as it exists in this country, which is 90 percent defense waste. Instead, we will have once again passed legislation which involves the government in helping to bail out the private sector. We will have given Government a role in a problem which this administration is having in continuing to try to keep alive an industry which is in a moribund state.

I have very great difficulties in following the intellectual consistency of an administration which has said that it is committed to finding a comprehensive solution to the nuclear waste problem in this country, when we exclude 90 percent of the problem from any kind of deliberation. When recommendations are made to the Congress that we not take any of that military waste problem into consideration in our deliberations.

I am hard pressed to explain to people who are concerned with this issue, genuinely concerned with a permanment waste repository being constructed, as I am, that we will have let this opportunity—when the Nation's attention is focused on the problem—to finally once and for all come together and to try to put together that kind of comprehensive solution.

I would like to hear your explanation, and what we can say to the American people with regard to that other 90 percent that will go undealt with in this program. How do we explain to them the justification for giving them false assurances, wrong assurances, that the nuclear waste problem has been dealt with, when in fact it has not at all?

Secretary **EDWARDS**. Mr. Markey, I agree with you that the defense waste problem has not been dealt with, nor will it be dealt with when we pass this bill. But the commercial nuclear waste situation will be dealt with, and that includes about 89 percent of all the radioactivity that we are involved in.

It is only 2 percent by volume, but we are well on our way, much more advanced than we were 15 months ago, to answering the problems of the defense waste, and we do have——

Mr. **MARKEY**. What are the problems? You have said in your testimony today, you said that there is absolutely—let me just get the exact quote. You say, "For some time we have known that there are no technical barriers to managing radioactive waste."

Secretary **EDWARDS**. That is right.

Mr. **MARKEY**. If there are no technical barriers, why don't we make this a comprehensive bill? Why don't we include defense waste? Why don't we take the technology that you say is available and use it to deal with defense waste as well as civilian waste?

Secretary **EDWARDS**. Mr. Markey, we have programs ongoing where, for example, in my home State of South Carolina we have 28 million gallons of radioactive liquid salts. We are in the process right now, and we hope to have the funding this year, we had some funding last year, we hope to take those radioactive salts and glassify them into logs. Then we will place them when we get the appropriate geological formation.

Mr. **MARKEY**. Why don't we use that for defense? You are telling us here today that the radioactivity in defense waste is less than that in civilian waste?

Secretary **EDWARDS**. That is right.

Mr. **MARKEY**. Yet at the same time you are telling us that we should not deal with defense waste, although we should just exclude it?

Secretary **EDWARDS**. Mr. Markey, I am not telling you that. I am telling you we are dealing with defense wastes now. We have pushed to get the glassification procedure in place. I have fought hard. If you will give me the money, I can take care of the defense waste tomorrow, glassify all those radioactive salts, but it is going to take an awful lot of money.

Mr. **MARKEY**. Why don't you want to make it part of this program?

Secretary **EDWARDS**. I think we should separate.

Mr. **MARKEY**. Why should we separate?

Secretary **EDWARDS**. Traditionally and psychologically, the nuclear defense programs have always been separated from the commercial programs.

Mr. **MARKEY**. But in terms of the exposure——

Secretary **EDWARDS**. And I am sure you want that.

Mr. **Markey**. I do not want that.

Secretary **Edwards**. You do not want that?

Mr. **Markey**. Not in terms of disposal. The permanent disposal of this waste has to be done in a uniform, comprehensive manner, and I don't understand why we continue to somehow or other perpetuate the mythology that there is some danger to the public from civilian waste that is stored at reactor sites.

But there is no danger, that we can defer indefinitely the solution of the civilian problem. I don't understand why we don't want to consolidate it.

I don't want to see civilian waste used to construct bombs, but if we are going to dispose of this waste permanently then I don't understand why, if we are here today, if the public is exposed to risk from the storage of this nuclear waste, why we don't try to put together a civilian program, a program, a comprehensive program that can deal with it.

Mr. **Corcoran**. Would the gentleman yield?

Mr. **Markey**. I would be glad to yield.

Mr. **Corcoran**. I thank my friend from Massachusetts for yielding. It is my understanding that the nuclear waste is reprocessed from the defense program. Is the gentleman suggesting that we ought to reprocess the commercial waste?

Mr. **Markey**. The gentleman is suggesting that we ought to bury it all as far away as we can from the civilian population, and ad infinitum, and I don't think we ought to reprocess, and I don't think that we ought to separate the civilian from defense.

I think we all ought to treat it as it is, which is a tremendous societal problem, that the civilian population cannot distinguish in terms of the danger that it poses to their health and safety.

They cannot tell whether or not a site that is being used as a repository is civilian or military. All they know is that their health and safety is jeopardized, if the facility is not secure. What we are saying here today is that we are going to establish two standards, one for civilian waste, which is 1 percent of the problem, and the other for military waste, which is 99 percent of the problem.

We are going to pass a bill out of here which is somehow or other going to be blasted across this country by the nuclear utility industry as the solution to the nuclear waste problem, and we are going to lose the opportunity which we have right now of taking the part of this problem which has the public pressure to find a solution, and we are going to just lose that chance to comprehensively then deal with the military problem, which is much more intractable, has many more political difficulties, and will probably never be solved, if we don't take this opportunity with the civilian problems to deal with.

Mr. **Ottinger**. Would the gentleman yield?

Mr. **Markey**. I would be glad to yield.

Mr. **Ottinger**. The Secretary undertook, with help from Mr. Odle, who I see is here, to explore with the military departments and with the Armed Services Committee the possibility of resolving the problem in this bill. Can you advise us as to what the status of those explorations is?

Secretary **Edwards**. Mr. Ottinger, could I ask Mr. Roser to reply? Before I do, in reference to Mr. Markey's—shall I say speech or question or whatever it is—I would like to point out that utilities are being charged 1 mill per kilowatt-hour to bury this waste. So this is not a bailout at all.

It is a user-fee concept. Of course, the utilities through the public service commission are going to pass it on to the consumer. The consumer ultimately gets the bill always. I wanted to make that point before I ask Mr. Roser to respond to your question and to Mr.——

Mr. **Markey**. If I may reclaim my time just briefly, this full-page ad in the Washington Post on March 16, 1982, indicates indeed that this bill is a bailout for the private sector, not a bailout in the sense that their ratepayers aren't going to have to pay for it—if we can distinguish between taxpayers and ratepayers, which is a very fine point indeed—but that for an industry that needs an answer to the question, "Will this Congress be the Congress that responds to the public's demand for a solution to the nuclear waste problem?"

We are not talking about a solution to the nuclear waste problem in this bill. We are talking about a solution to the utilities waste problem in this bill, and that as soon as this bill passes, there will end forever a concern over the disposal of the other 99 percent.

We will lose the public demand, the consensus that is building in this committee, in this Congress for a solution, because people are going to come before us and say it is too tough. We can't take care of military at this time. We will come back and revisit the issue in 5 years or 10 years down the line, and we know that once this bill passes out of here, once this train is in the terminal, that we will never again come back and look at this issue that poses 100 times greater risk in terms of volume. Radioactivity might be much less than it is in civilian waste, but it is more than enough to kill or to injure people if it is placed in areas that have the likelihood of causing damage to the public. So I just have a hard time in understanding why we don't take this chance, this opportunity.

If we are going to spend the money, let's spend it now. If we have got a program on the books, if we are putting together a construct which is going to be safe for civilian waste, why don't we do it for defense at this time, and that is all I am asking, Mr. Secretary, if you could tell us why we don't do it comprehensively and in a coordinated fashion.

Secretary **Edwards**. I will ask Mr. Roser to respond.

Mr. **Roser**. Mr. Chairman, in responding to your question, which I think will also perhaps go with Mr. Markey's question, we have indeed contacted the Department of Defense and worked with the Armed Services Committees of both the House and Senate, and they are more than agreeable to see a waste bill passed during this session, provided it does eliminate any reference to defense waste.

In response to Mr. Markey's question, I would like to simply say, Mr. Chairman, that we do have defense high-level nuclear waste. It is a result of having reprocessed material that has gone through a reactor. We have selected a waste form in which to so liquefy that waste and put it in canisters, where it will be perfectly benign as far as its storage is concerned, until a final waste repository is selected. And once a final waste repository is selected, there is no reason why that military waste cannot go in that repository.

Mr. OTTINGER. Mr. Secretary, at that point, are the Armed Services Committees and the Defense Department prepared at this point to see that provision included in this bill?

Secretary EDWARDS. The provision that defense waste was not to be included in any——

Mr. OTTINGER. They are not prepared to say that we can take the waste from the military installation gate and put it in the repository that is being provided in this bill?

Secretary EDWARDS. Yes, sir, they are prepared to say that. As a matter of fact, we have testified to that fact, the fact that the waste in its final form, military waste in its final form, may be placed in any repository which is provided for civilian waste.

Mr. OTTINGER. What I asked the Secretary, Mr. Odle and yourself to ascertain, was whether the various Armed Services Committees and Defense Department is willing to see that provision made in this bill.

Mr. ROSER. They are, provided it is waste in the final form, Mr. Chairman, and provided there would be no adverse effects to our DOE defense programs.

Mr. OTTINGER. I understand.

Mr. MARKEY. Do you believe that language required is not "may," but "should," if this is a serious national problem—do you believe it is a serious national problem, sir?

Mr. ROSER. I certainly do.

Mr. MARKEY. Do you believe it "should" be disposed of then, not "may" be disposed of by the Defense Department, not leaving an option to them, but the Congress mandating to them in the manner in which they ought to dispose of it?

Mr. ROSER. I think it must be disposed of, Mr. Markey.

Mr. MARKEY. The language that you are talking about should it be hortatory or mandatory?

Mr. ROSER. Provided it is treated as the waste in its final form, and provided there would be no advance effect on defense programs, it could very well be mandatory. I don't think that that is a very wise decision, and let me tell you why, sir.

The NRC has not decided on either the form or the size or anything else for the waste that will go in that final repository. We are in the process, and will continue to treat defense high-level waste, put it in its final form, put it in canisters, where it will be perfectly safe for interim storage until a final repository is agreed upon. We have defense wastes in the State of Idaho in perfectly acceptable solid form to stay for 50, 100, 200 years.

I do not believe that that is the manner in which the waste should finally be disposed of, but it is perfectly safe, and benign until a final repository is decided upon. And then there is no reason why that waste should not be placed in that repository.

In addition to the need to avoid adverse impacts on defense programs, the only reason I don't think it is wise to say mandatorily that defense waste should be placed in a civilian repository is that it could bring the possibility up that that waste may have to be put in different size containers, or in a different form, which I don't think is wise.

Mr. MARKEY. You don't think it is right that the States should have some control over what form the military waste is put in, NRC licensing, or that there be public participation? Do you think the military should be exempted from the same kind of scrutiny to which civilian waste is put?

Mr. **Roser**. Mr. Markey, I don't believe that the form of the waste that goes in that repository is a matter that will be decided by the States. That is a matter that will be decided by the Nuclear Regulatory Commission, and they have full procedures for State participation in all of their proceedings.

Mr. **Markey**. So the question is then, as we try to decide to pass out this bill, we are being told that 90 percent of the volume of the nuclear waste in this country is military. So in appropriating money, in trying to make plans, in giving direction to the relevant agencies in order to make their decisions we have to tell them we are dealing with 10 percent.

Are they looking for a hole that is the size of a crater, or are they looking for something that is the size of the Grand Canyon? Because the cost and the planning and the siting, the environmental studies are all going to change, depending upon the nature of the mandate that we give to them.

Should we mandate that in their consideration for the planning of a permanent repository, that they should plan as though the other 90 pecent of the waste, which is defense, is also going to be placed in those repositories? That is a fundamental question that we have to address here.

Mr. **Roser**. Again, there is absolutely no technical reason why defense waste in its final form should not be placed in that repository. It is simply a matter of whether or not we will have defense waste solidified and ready to put in a final repository before the determination is made whether or not you are going to reprocess commercial spent fuel.

Mr. **Ottinger**. Will the gentleman yield?

Mr. **Markey**. I will be glad to yield.

Mr. **Ottinger**. The other thing that I asked the Department to explore was the extent of requirements the NRC might have as to what is contained in those wastes, what degree of radioactivity it has or whatever else it may need to know before defense waste is put in. Have you or Mr. Odle talked to the NRC about that? Is it satisfactory to the NRC to take the waste in any form it comes out at the military gate? Or is it going to have to have certain information with respect to the character of that waste?

Secretary **Edwards**. Mr. Chairman, I didn't realize you wanted this information, but we will try to get it for you. I don't know that we can or not at this stage.

[The following response was received:]

The NRC has published its requirements for the waste package and for disposal of high-level waste in its draft regulation, 10 CFR Part 60. DOE would have to meet this regulation with defense waste.

DOE would have to provide such documentation and other information, and allow NRC inspections and other involvement with respect to related defense activities, as NRC may require. These areas cannot be addressed in detail until a reference waste package design and other engineered barriers, and a specific repository have been selected. Additionally, the consequences and details of NRC's involvement in defense related activities cannot now be determined.

Mr. **Ottinger**. That is critical, because if we are to make a provision that the military waste in its final form at the military gate is to go into the repository, we need to know whether that is satisfactory to the NRC. Also how much information about that waste and what kind of information is going to be needed, to know whether in fact it causes a security problem.

Mr. ROSER. Mr. Chairman, I would recommend very strongly that this committee not mandate that military and civilian wastes be commingled. I think that will create a problem with the Armed Services Committees and with the Department of——

Mr. OTTINGER. I thought you just said that it would create no problem. You said if we accept the waste in its final form at the military installation gate, that there was no problem with the Armed Services Committees or the Defense Department putting them in the same repository.

Mr. ROSER. I think that is true, Mr. Chairman, as long as it is not mandated. But the possibility of going ahead and constructing a defense-only repository may become desirable, if we can't get a civilian repository or a commingled repository in a reasonable period of time.

We are substantially ahead of the civilians sector in our ability to handle, process and solidify defense waste, and I have said that I see no technical problem with commingling in a final repository, and I have checked that out with the Armed Services Committees, and they see no technical problem. They do not think it is desirable to mandate that in this legislation.

Mr. OTTINGER. Why?

Mr. ROSER. Simply because there could be adverse effects on defense programs or it may be necessary for some final disposition of defense waste to be had before we really get a solution to the civilian waste problem.

Mr. OTTINGER. Explain that to me. You said this is safe for 200 years in the glassified form and canisters——

Mr. ROSER. That is true.

Mr. OTTINGER [continuing]. That you talk about.

You think it is going to take us 200 years to get a civilian repository?

Mr. ROSER. Not at all, sir.

Secretary EDWARDS. At the rate we are going, Mr. Chairman, I am not sure.

Mr. ROSER. We may be faced with building more interim facilities for storage of waste in its final form if we don't have a repository, and I don't think that is a very wise investment.

Mr. OTTINGER. It sounds like doubletalk to me. If in fact what you said is true, and that it can be kept in interim storage for a long period of time. That the waste is pefectly acceptable in an eventual civilian repository. Then I really don't understand what the problem is of seeing to it that the public is assured that the military and civilian waste will be put in the final repository that is selected by this process.

Mr. ROSER. I would tend to agree, Mr. Chairman, but I simply have reported to you the impression that I get from the staffs of the committees with whom I deal.

Mr. OTTINGER. You did not contact the NRC with the information that they will require with respect to the character of the waste?

Secretary EDWARDS. No.

Mr. OTTINGER. Would you do that as quickly as possible.

Secretary EDWARDS. We would be glad to.

Mr. OTTINGER. Mr. Markey.

Mr. MARKEY. Just so I understand your opinion on this subject, do you give any validity to the opinion held by the Armed Services Committee that there may be some reason why they will have to dispose of military waste permanently before this civilian repository is made final?

Mr. ROSER. Yes; I think there is some validity to that.

Mr. MARKEY. Could you give us that scenario? That is what this committee wants to hear, the justification for the exclusion.

Mr. ROSER. We are in the position at the present time at our Savannah River plant where by the time we start to permanently glassify the high-level defense waste, all of the interim storage tanks for high-level liquid waste will be full. If we don't proceed with putting that waste in final form, we are going to have to build more interim waste storage tanks.

Mr. MARKEY. On site?

Mr. ROSER. Yes; if we do proceed to glassify, our planning was to put a facility there which would hold that waste in temporary storage for no more than a few years, a couple of years' capacity. It is necessary to build a facility to put that waste in, a dry facility, although the waste is benign. But if we keep the waste on site very long, it is going to mean building more facilities.

It is simply more economical to move, once that waste is glassified and in its final waste form, toward putting it in a final waste repository than it is to continue to build interim storage. It is the same argument as it is for spent fuel coming out of a reactor.

Mr. OTTINGER. You would conceive of a separate military procedure? The existing law is that that has to go into a licensed repository?

Mr. ROSER. Not at all.

Mr. OTTINGER. You would have to go through a whole separate procedure for repository for military waste before the process for civilian waste?

Mr. ROSER. There is a requirement currently that high-level military waste go into a licensed repository. But I can conceive, Mr. Chairman—it may not be a very popular scenario—of the fact that we may still be wrestling with the civilian side of the business when we have to have a licensed military repository. I hope that is not the case, and I don't think it is very likely, but I think it is possible.

Mr. OTTINGER. But that is the contingency under which the recommendation is made to us that we exclude military?

Mr. ROSER. Well, I think the other, Mr. Chairman, is the economics of the situation, wherein we don't want to build, and I don't think it's desirable to build, interim storage for waste in its final form.

Mr. OTTINGER. It is going to be very expensive to create two processes.

Mr. ROSER. That is entirely possible, Mr. Chairman.

Mr. MARKEY. You are saying the reason that the military should be excluded from this bill is that they may be forced, because of the volume of military waste, to pursue a different course, a different set, a different piece of legislation. You are predicting the permanent disposal of military waste, before the civilian waste problem is found; is that correct?

Mr. ROSER. I think that is entirely possible.

Mr. MARKEY. And it is primarily justified by economics; that is, that it would be uneconomic for the U.S. Government to continue to pick up the tab for more and more interim storage facilities to be constructed while awaiting the discovery or the final form of a permanent repository?

Mr. ROSER. That is correct.

Mr. MARKEY. Is that correct?

Mr. ROSER. That is correct.

Mr. MARKEY. It would be strictly economics?

Mr. ROSER. Not strictly economics. I said economics was one factor.

Mr. MARKEY. What are the other factors?

Mr. ROSER. The other factor is that we are so far ahead of the current handling——

Mr. MARKEY. Who is "we"?

Mr. ROSER [continuing]. Of commercial waste——

The defense program.

Mr. MARKEY. The defense program?

Mr. ROSER. That is right. We are prepared to start storing our waste in its final form now, essentially as soon as we start the glassification process at Savannah River.

Mr. MARKEY. Do you believe that that military permanent disposal ought to undergo the same kind of procedural protections as the civilian waste?

Mr. ROSER. Yes, sir, I do.

Mr. MARKEY. Do you believe that they ought to have the same kind of guidelines which will be set out in this legislation?

Mr. ROSER. Absolutely.

Mr. MARKEY. Do you think we ought to include those guidelines for permanent military waste disposal in this bill?

Mr. ROSER. I have no problem with that.

Mr. MARKEY. You don't have any problem with that?

Mr. ROSER. No, sir.

Mr. OTTINGER. Would you provide us cost estimates of addition of storage for military waste versus creating a separate permanent repository.

Mr. ROSER. I would be happy to, Mr. Ottinger.

[The following response was received:]

As you know, there are no plans at this time for a defense-only repository and planning for a commercial repository has not yet begun. The "cost" of storing defense waste until any final repository is completed and available is difficult to calculate. As a measure, we expect it to cost about $15 million per year (in 1982 dollars) to "store" immobilized high-level waste beginning in 1990 at Savannah River (SR). If one assumes the current reference schedule for a licensed commercial repository, which says that repository would be available for permanent storage of either commercial or defense waste by 1998-2001, and if one assumes that all of the defense wastes could be disposed of in that repository without adverse impact on national security, the SR storage costs would be approximately $150 million.

Mr. OTTINGER. The Chair has to recess, and unless the gentleman from Massachusetts can take over, we will thank our administration witnesses.

Secretary EDWARDS. Mr. Chairman, before you close down, I just wanted to thank you and the committee for moving ahead on this problem. I am rather excited about the possibilities and I hope that we will continue to make as much progress as we have in the last few weeks, and I appreciate your help.

Mr. OTTINGER. The hearings will be recessed until approximately 1 o'clock. We will hear our State witnesses at that point. Mr. Brewer, if you can stay for that, we would appreciate it.

Mr. MARKEY. Mr. Chairman, if I may, would it be possible for us to submit to them additional questions from the subcommittee of a technical nature?

Mr. OTTINGER. Absolutely, and I assume the department is willing to answer those questions.

I would like to thank the Secretary for his cooperation in trying to reach a resolution of this problem.

[Recess.]

Mr. OTTINGER. We will resume our hearings on high-level nuclear waste, and we will have a panel now, the State representatives: Dr. Milton Holloway, executive director of the Texas Energy and Natural Resources Advisory Council; James Tierney, attorney general of the State of Minnesota; Juline Christofferson, physical resources coordinator of the Governor's office of Utah; and Steve Robinson, director of the Nevada Department of Energy.

I welcome you. I apologize for the delay. If each of you could summarize your full statements and tell us what your problems and your desires are with respect to the legislation before us and the many problems you may have had in dealing with the Department of Energy on this subject, I would prefer to do it informally.

As I understand it Dr. Holloway has something of a time problem. Why do we not hear from you first, if you like.

STATEMENTS OF MILTON HOLLOWAY, EXECUTIVE DIRECTOR, TEXAS ENERGY & NATURAL RESOURCES ADVISORY COUNCIL, ACCOMPANIED BY TED TAYLOR, DIRECTOR, POLICY ANALYSIS DIVISION; JULINE CHRISTOFFERSON, PHYSICAL RESOURCES COORDINATOR, GOVERNOR'S OFFICE, STATE OF UTAH; JAMES TIERNEY, ATTORNEY GENERAL, STATE OF MAINE; STEVE ROBINSON, DIRECTOR, NEVADA DEPARTMENT OF ENERGY; AND HOLMES BROWN, NATIONAL GOVERNORS' ASSOCIATION

Mr. HOLLOWAY. Thank you, Mr. Chairman. I am Milton Holloway, the executive director of the Texas Energy and Natural Resources Advisory Council, appearing on behalf of Governor Clements and the council.

The State of Texas of course is very interested in this legislation, and I believe it should be passed as expeditiously as possible. We basically agree with many of the things in the draft legislation. There are, however, several issues related to the State participation role which we think could be improved, and those are where I would like to direct my comments.

The council is the State body charged with development of energy and natural resources policy in the State, and we have been charged by the Governor with the responsibility of communicating and coordinating with the Department of Energy on this program. The State has been involved in dealing with the Department of Energy on this issue since the mid-1970's.

A serious study of salt domes in Texas was begun in the mid-1970's. Later, studies of the Palo Duro area of the High Plains was begun in about 1977. About a year or year and a half ago when it became obvious that the State was a contender for a repository by the Department of Energy and a likely final candidate for the first repository. The council and the Governor have recently made a number of statements on this topic. If I can paraphrase the substance of those statements, they essentially are that the State does support the timely and safe development of nuclear power, and with that the development of a solution to the high-level waste disposal problem. We, however, believe that it is essential that the States be involved throughout the process, and we have adopted a resolution and the Governor has supported such a concept that we should cooperate with the Department of Energy in the conduct of the technical studies, and I emphasize the technical studies, that precede the final decisionmaking. As a part of that we have tried to insist that the State be kept adequately informed about the progress of the technical studies, that we have the opportunity to review technical documents upon which various decisions are made as we progress toward a final decision point.

I would like to address four issues in my statement. The first has to do with written agreements between the State and the Department of Energy. The second concerns compensation to the States for participating in the development of a repository and the studies, as well as for impact mitigation. Third, the issue of congressional review of State objections on the final repository site selection. And fourth, the issue of judicial review.

On the issue, and I think this is probably the issue of most concern to the State and one which we believe the draft legislation could be better written, has to do with the written agreements between the Department of Energy and the potential host States. The idea I believe is well founded that both the national interest and the interest of the States will be well served by early delineation of the exact nature of the State role in the conduct of the studies and final decisionmaking.

While there is some language in the bill which addresses the written agreement between the States and the Department of Energy, we think that it should be more specific and that it should be written early in the process; that is, we believe that as soon as a State is identified as a serious area of study for the Department of Energy, that the Secretary should enter into a cooperative agreement with the State involved, and that it should lay out specifically the plans and ways of interacting with the State.

To be specific, we would recommend several additions to the language now in the bill. First, that it should provide—the cooperative agreement should provide for resolving State and local government concerns regarding the decommissioning of a repository; that it should provide for timely schedules for State review and evaluation, including the identification of key events, key decisions, and the submission of technical documents which justify each step in the investigation. The agreement should provide for prenotification of transportation of waste into the State. It should provide for the sharing of information and available expertise to facilitate the permitting procedures in the joint review process. It should provide for public notification of the contents and procedures of this agreement. It should provide for financial assistance to the States for State participation in facility development. It should also provide for impact mitigations for costs associated with health, safety, environment, economic, and social impacts. Finally, it should establish conflict resolution mechanisms.

The second area of major concern to the State has to do with compensation. As has been mentioned already several times this morning, high-level waste disposal is a national problem. It is created, so far as the commercial waste is concerned, by some 24 States who now have operating nuclear power plants, 34 plants if you include those with plants under construction, and yet we are looking to a select few, in this case 6, coming down to the final choice for the first repository; six States in which there is very little nuclear power plant operation or development. So we are really asking one State to become responsible for hosting a national facility that has, at least, perceived large risk, and we believe that the States should not have to bear the economic cost of participating in the process or for mitigating any negative impacts that may be associated with the location and operation of the facility.

Therefore, as a matter of principle we believe the legislation should be fairly flexible in terms of the Secretary being able to work with the State to define the impacts, and I would point out that those are not known with any certainty now, either regarding the time period over which impacts will occur or the magnitudes associated with it, and we will not know the specifics of that until an actual site is identified and the specifics of the development and operation plan are laid out.

I would point out that every expectation is that the negative impacts, the cost, the actual economic costs that may be imposed on a community may be heavy in the early stages of construction with positive impacts coming much later, so that if you asked a local community what interest they have in such a facility, I can guarantee you the only positive interest they have is in the positive economic impacts of such a facility. Once they determine that it may be 10 years before any positive impacts to offset the negative ones occur, their interest is not likely to be very high. So we believe that the process should allow the Secretary to work with the States in negotiating appropriate compensation for the State's willingness to host and to work with the Department of Energy in the construction and operation of such a facility.

On the issue of review of State objections, we firmly believe that we should require a two-House override as a procedure for making sure that the State's concerns in the final analysis are recognized. This we believe, would put the burden of proof on the Department of Energy to make sure that the justification is well understood that their program has been conducted well, that they have answered the technical questions, and so on. To do it the other way would put the burden on a particular State, and we see no justification for that. In fact, the Governor's words on this issue are "at least a two-House override."

On the matter of judicial review, we see no reason to require that such review be handled by the District of Columbia Circuit Court. Instead we believe that courts in the regions have historically been responsive and sensitive to the needs and interests of the regions served, and we see no evidence that the District of Columbia court has established any particular expertise on this topic, and therefore no justification for requiring that the District of Columbia Circuit Court be the court of jurisdiction.

There are other issues that we have spoken to, but I will not get into those unless you want to pursue them in questioning. In short, the policy of the leadership of the State which is available in written documentation, is that we should cooperate with the Department of Energy in the conduct of the technical studies now underway leading to a final decision, but that we insist that the State be provided with a rigorous, deliberate, and thorough technical investigation program to be developed and maintained. We insist that the State be assured of ample opportunity to fully participate in all aspects of the repository development program. The suggestions that I have presented are intended to enhance the partnership between the Federal Government and the potential host States to reinforce the possibility of success in this important national endeavor.

Mr. OTTINGER. The gentleman from Massachusetts indicated that the State of Texas has had some difficulty getting the information it needs to make State participation a reality. Were you here for his remarks? Is what he said accurate?

Mr. HOLLOWAY. I did hear Mr. Markey's remarks. They were slightly in error in factual content. He was referring to a chart which accompanied a letter from Secretary Edwards to Governor Clements in March of this year. As I mentioned earlier, about 1 year ago, when we became convinced that Texas was a serious contender for the first repository, we developed what our attitude should be, and a part of that attitude was to insist that the Department of Energy provide us with accurate technical information, provide us with reports to review, and allow us time to comment on the substance as well as the definition of the program. So the Governor wrote the Secretary requesting that they lay out the plans, because we had not seen those, particularly for the Palo Duro area. We had seen no detailed plans at all about the planned activities in the development of those technical studies. So we asked for that.

The first letter from Governor Clements was sent in July of last year. It took us until March of this year to finally get a response laying out specifically the studies which the Department of Energy intended to undertake, the important decisions that would justify later investigations leading to final decisions on a repository, and opportunity for the State to respond to those. So we in that document worked out what I think is an informal consultation and concurrence process between DOE and the State providing assurances that we would be given adequate time to review documents, that the Governor would be notified before important decisions are made, and that the State and the Governor be allowed an opportunity to object if we see problems.

The letter which finally came in March did that, and we worked intently with DOE personnel in developing that to our mutual agreement. By the time the letter came, it was clear that the program had slipped in its time schedule already, and we are—I think DOE does owe us one of the major reports mentioned—two, I guess—two of the major reports which are supposed to be forthcoming. The plan laid out by DOE also indicated a significant decision on the location of a pilot borehole which would precede the decision to sink an exploratory shaft. That decision apparently has been delayed, and so that report has not been forthcoming, either.

The further agreement was that should this plan be significantly revised that the Governor would be notified by the Secretary of such revisions justifying why the changes were made. As I indicated, the schedule has obviously been slipped. We have not received any notification of why that is the case. I should point out that we have dealt personally with Mr. Brewer and with others on his staff, and have, I think, developed a good working relationship with them, and I personally think they are very competent and capable people who understand both the politics and the technical issues involved; I am very impressed with the DOE personnel who are managing the program. But when I look at the facts of delivering on promises they do not always live up to their commitments and we, though we are not greatly concerned about that at the moment, we want to make sure that this is not the case as we move closer to the final decisions.

[Testimony resumes on p. 350.]

[The prepared statement of Mr. Holloway follows:]

TESTIMONY OF

MILTON L. HOLLOWAY, EXECUTIVE DIRECTOR
TEXAS ENERGY AND NATURAL RESOURCES ADVISORY COUNCIL

ON BEHALF OF

GOVERNOR WILLIAM P. CLEMENTS, JR.
AND
THE TEXAS ENERGY AND NATURAL RESOURCES ADVISORY COUNCIL

BEFORE THE

SUBCOMMITTEE ON ENERGY CONSERVATION AND POWER
OF THE
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

REGARDING

DRAFT SUBCOMMITTEE SUBSTITUTE FOR H.R. 3809

JUNE 8, 1982

Mr. Chairman, members of the Subcommittee, I am Milton L. Holloway, Executive Director of the Texas Energy and Natural Resources Advisory Council. Dr. Ted Taylor, Director of our Policy Analysis Division, has accompanied me to assist with any questions. Among the statutory duties of the Council is the responsibility to monitor legislation before Congress and offer input consistent with established Texas energy policies. In accordance with that responsibility, the following testimony concerning high-level radioactive waste disposal legislation is presented on behalf of Governor William P. Clements, Jr., and the Texas Energy and Natural Resources Advisory Council.

The energy policy developed by the State of Texas endorses the development of nuclear power and implementation of an effective program for management of the radioactive waste materials generated by nuclear power plants. When the four reactors in Texas are completed and begin operating in the 1980's, they will contribute approximately 1-1/2 million kilowatts of capacity to the electric power grid in Texas while generating over 100 tons of spent fuel annually. Texas' concern over the waste disposal issue is heightened by the Department of Energy's investigation of geologic formations in Texas as potential high-level waste repository sites.

The current investigation of salt deposits in the United States was initiated by the U.S. Energy Research and Development Administration in the middle 1970s. The Gulf Coast salt dome region includes a portion of east Texas, and in 1977 the Department of Energy initiated studies of those salt deposits in Texas and obtained the assistance of the Texas Bureau of Economic Geology in conducting geotechnical investigations. Subsequently, the Department of Energy intensified its investigation of bedded salt deposits in the Texas High Plains area, and the Bureau of Economic Geology agreed to assist in those investigations as well.

Texas policy on waste disposal has specifically mandated cooperation with the Department of Energy during the technical studies phase of the program and that policy has been complied with. The State of Texas has developed basic geotechnical data, provided analysis and interpretation of these and other data, reviewed results and plans of the Department of Energy and its contractors, and performed administrative and information distribution functions in part supported by State funds. We have also studied the decision-making process for siting decisions and have formulated views on this important facet of the disposal issue.

The Council as a whole and the Governor individually have prepared and adopted as policy several resolutions specifically addressing high-level waste legislation under consideration in Congress and these resolutions form the basis for my statement. We have carefully reviewed the draft legislation prepared for consideration of this Subcommittee and find many provisions of that bill consistent with the policy articulated by the leadership of our State. There are, however, several alternatives which, based on our experience in this area, would render the bill more effective and equitable. The major provisions on which I will concentrate are (1) written agreements between the Department of Energy and potential host states, (2) compensation for State participation in repository development and for impact mitigation, (3) judicial review limitations, and (4) Congressional review of State objections to repository site selection.

WRITTEN AGREEMENTS

Because of the complex interactions between Federal and State governments in implementing the repository investigation program, detailed binding written agreements are essential. Subsection 117(c) of the draft bill includes limited provisions for written agreements. We suggest additional language specifying that negotiation of a written agreement begin within 60 days after notification that the Secretary of Energy has decided to study an area within such state, and that the agreement be completed within six months. In addition to the contents of such agreements already specified in this Subsection, we encourage addition of provisions for (1) resolving State and local governments' offsite concerns and funding and assistance for monitoring of the site upon decommissioning; (2) for providing timely schedules for State review and evaluation, including identification of key events, milestones, and decision-points; (3) for prenotification of transportation of waste into the State for emplacement in a repository; (4) for sharing information and available expertise to facilitate permitting procedures and joint project review; (5) for public notification of the procedures specified under the agreement; (6) for a plan to provide financial assistance for the cost of State participation in facility development and for the cost of mitigating of health, safety, environmental, economic, and social impacts including royalties or assessments to the States; and (7) for establishing conflict resolution mechanisms. A comprehensive agreement incorporating these provisions is urged in order to promote early and comprehensive involvement of the State in the repository development process. I call your attention to the specification that the document prepared be a binding written agreement providing recourse of the parties to the agreement in the event the provisions stipulated are not met.

During the past five years of involvement in the high-level waste investigation program, the State of Texas has acquired substantial experience in interactions with the Department of Energy. While we concede that much of the interaction with DOE has been productive, we have too often found Doe reluctant to comply with our requests for information and prone to postponement of deadlines for decisions and for release of documents, schedules, and plans. With a project of this magnitude and consequence, it is imperative that the parties involved attempt to maintain a cooperative relationship based on clearly defined guidelines and we encourage requiring comprehensive agreements to foster this cooperation. In the absence of legislation detailing the guidelines for state participation, Governor Clements has asked for DOE to be specific in their plans and obligations for state notification. The attached letter from Secretary Edwards to Governor Clements took considerable time to prepare. Since the letter was written, the time schedules contained therein have already slipped and we are concerned that as a potential host state we are continually placed in a position of insisting that DOE lives up to its commitments.

COMPENSATION TO STATES

A second major concern of the State of Texas, mentioned in the written agreement suggestions above, is that of financial assistance to potential host states for both participation in investigations and impact mitigation for any state selected for a repository. The disposal of high-level radioactive waste is clearly a national issue with 34 states having nuclear power plants under construction or in operation. Requiring the state of potential host states to assume the financial burden for monitoring investigations within their borders and requiring the state selected for a repository to absorb all costs for mitigating impacts is inequitable and unreasonable. Some of the states currently under investigation are receiving grants ranging up to hundreds of thousands of dollars per year, even for these early stages of the investigatory process. We suggest that in Section 116(b), the share of funds provided by the Federal Government for State participation in the investigations be increased and a smaller requirement specified for the State portion in order to discourage excessive expenditures on the part of the State. We further recommend that flexibility in funding public information programs be provided and left to the process of negotiation between a State and the Secretary.

I offer the following recommendations with respect to procedures for determining impact assistance. The draft legislation before the Subcommittee requires that any state desiring assistance prepare an impact report to be submitted to the Secretary after completion of site characterization activities and before recommendation of that site for a repository. The procedures specified in Section 114 of this bill could result in a period as short as 30 days from the completion of site characterization until the time at which the Secretary recommends a site for a repository. We therefore recommend deletion of the requirement that the impact report be submitted prior to the Secretary recommending a site for a repository to the President.

Also, Section 116(b) is vaque in stipulating when impact assistance will commence and further requires completion of judicial review of any action seeking to prohibit construction of a repository before impact assistance is provided. We recommend that impact assistance commence within a specified period of time (on the order of six months), even if construction has commenced concurrently with judicial review of any action seeking to prohibit construction.

Finally, this subsection also provides that state request for impact assistance be submitted by the Secretary to the President and Congress. Section 123 of the bill grants the Sectretary the power to make expenditures from the Nuclear Waste

Fund for specific purposes including impact assistance. We support the provision authorizing the Secretary to grant impact assistance funds and suggest deleting the requirement submission of state's request to the President and Congress. We do support provisions in your bill requiring that financial assistance to the states be provided through fees assessed on the operators of nuclear power plants.

JUDICIAL REVIEW

I next address the issue of judicial review limitations as provided in Section 119. Specifying the U. S. Court of Appeals for the District of Columbia as the Court of original and exclusive jurisdiction unnecessarily restricts the states' access to the Courts. Given the historical role of the Courts of Appeals to promote regional access, there is no reason to restrict venue to the D. C. Circuit, especially since the D. C. Circuit has demonstrated no expertise in radioactive waste issues historically. The Circuit Courts, however, have demonstrated knowledge of and sensitivity to the needs and interests of the regions served. Moreover, a restriction to the D. C. Court would impose unnecessary logistical and financial burdens on the affected states.

In addition, we question the appropriateness of an 180-day deadline for commencing action. Often, administrative remedies must be exhausted prior to initiating Court proceedings. It seems unlikely that administrative remedies appropriate to causes of action specified under Section 119(a) could be exhausted within 180 days of the action or decision at issue. Further, we would request that, absent some compelling need to the contrary and as yet undisclosed, the states not be put under undue time pressure to prepare Federal Court pleadings which would, under the circumstances, be complex and unique. On the basis of these arguments, we recommend deletion of Section 119 in its entirety.

REVIEW OF STATE OBJECTION

A final major issue of concern to the State of Texas is the Congressional review of a state's petition for disapproval of a repository site designation.

Both the National Governors' Association and the State Planning Council on Radioactive Waste Management have recommended that the objections of states to siting decision prevail unless both Houses of Congress override such objections. The leadership of the State of Texas concurs with this policy in the belief that the burden of securing prompt Congressional action should be upon the Department of Energy rather than on an individual state. If the Department of Energy has designed and implemented its program, correctly utilizing sound technical and institutional analyses under written cooperative agreements with the states, securing Congressional consent in both Houses should not be unnecessarily difficult.

I now turn to several less significant issues which, nevertheless, merit some consideration. At several points in Section 115, 116, and 117, joint action of the Governor and Legislature is specified. The Governor, as Chief Executive Officer of the State, has the authority to speak for the State in these matters. Furthermore, many state legislatures do not meet continuously and their participation in required actions could necessitate expensive special sessions and unwarranted delay of the repository development process. We therefore suggest that these sections specify action by the Governor alone.

Though the State of Texas is not directly concerned with interim storage as with permanent repositories, the leadership of the State has addressed this issue to a limited extent. State policy supports development of away-from-reactor storage only if necessary to alleviate exhaustion of at-reactor storage facility capacity. Furthermore, any AFR facility developed should be utilized only for short-term storage and should not be permitted to lead to postponement of the resolution of the terminal disposal problem. Provisions in the draft bill emphasizing reliance on at-reactor storage, including transshipment among nuclear power reactors, expansion of at-reactor sorage facilities, and construction of new storage facilities at reactor sites with expedited licensing of these options will achieve these objectives.

Section 221 of Subtitle B dealing with low-level radioactive waste requires that the Nuclear Regulatory Commission approve financial arrangements prior to licensing of any new site or prior to closure of any site already licensed. Under provisions of the Atomic Energy Act of 1954 as amended, the states are allowed to enter into agreements with the Nuclear Regulatory Commission to assume responsibility for certain activities, including regulation of low-level radioactive waste disposal. Because the rules promulgated by such "agreement states" are required to be compatible with regulations of the Nuclear Regulatory Commission, the added requirement of Commission approval of financial arrangements for agreement state licensees is superfluous and time-consuming. We therefore recommend that Section 221 be amended to allow appropriate state entities in agreement states to approve financial arrangements for low-level waste disposal in agreement states.

My remarks today, though brief, address the provisions of this legislation which are of greatest concern to the State of Texas. In view of the Policy developed by the leadership of our State, it is our intention to continue to cooperate in the repository investigations now underway, provided that a rigorous, deliberate, and thorough technical investigation program is developed and maintained. We insist, however, that the State be assured ample opportunity to fully participate in all aspects of the high-level waste repositiory development program. The suggestions I have presented are intended to enhance the partnership between the Federal Government and potential host states and to reinforce the possibility for success in this important endeavor.

Thank you for the opportunity of presenting these comments. I will be pleased to address any questions which these comments may have prompted.

THE SECRETARY OF ENERGY
WASHINGTON, D.C. 20585

March 11, 1982

TO
MAR 17 1982 -6
DRAFT RESPONSE
cc Bill Hamilton
RECEIVED WPC

Honorable William P. Clements
Governor of Texas
Austin, Texas 78711

Dear Bill:

On two occasions, you have written to request specific plans for Department studies of the suitability of the Palo Duro Basin for siting a nuclear waste repository. I could only provide an interim response at the time, while our planning efforts continued in consultation with appropriate State agencies. Department staff have since discussed your request for planning information with Dr. Milton Holloway, Executive Director, Texas Energy and Natural Resources Advisory Council (TENRAC) in order to determine an appropriate scope and format. I am pleased to provide you with the enclosed charts and some explanatory comment.

This planning information reflects the Department's current intentions. Budget constraints, technical findings, and other matters can influence a plan, of course, and any future revisions will be provided to TENRAC. It is understood that the Department's program officials will continually consult with appropriate Texas State agencies with respect to the "fine structure" of activities supporting this plan.

The current schedule for the National Waste Terminal Storage program, shown in Figure 1, shows that we anticipate that ultimately one candidate site having a salt host rock will undergo the final most extensive stage of site examination. That final stage is expected to involve at-depth testing by means of a drilled exploratory shaft of approximately 10-foot diameter. If a site in the Palo Duro basin is eventually selected for an exploratory shaft in late 1983, then field exploration activities (i.e., geotechnical, environmental and socio-economic characterization) and at-depth testing could continue for as long as an additional 6 years (1989/90). In addition to salt rock systems, the flood basalts of the Pasco Basin in Washington State and tuff under the Department's Nevada Test Site are also being studied as candidates for repository siting.

The Department's near term program plan (1982/83) for the Palo Duro Basin is represented in Figure 2. Milestones are provided in Figure 2 for key field activities, for the series of field exploration documents that support a determination whether an exploratory shaft is justified in that basin, and for the review and Department decisions along the way. Specific geotechnical activities include the six hydrologic/stratigraphic drill holes that are to be completed prior to the report recommending a specific site for an exploratory shaft. This drill test program was developed in discussions with all parties (the Department, Battelle, the Texas Bureau of Economic Geology and TENRAC). There is also a principal borehole indicated in Figure 2. This special drilling for stratigraphic core and hydrology data will reduce the costs and contingencies for engineering and construction of the exploratory shaft, if the two are not too far separated.

Key decision documents will be forwarded to TENRAC to insure that the State of Texas has the opportunity to review the technical data base as well as the recommendations being made by Department contractors. Before transmitting these reports to the State, the Department will determine that they are adequate for the review intended. The current schedule allows for TENRAC's review of each document, as indicated on the figure. TENRAC is currently reviewing the Area Geologic Characterization Report, Area Environmental Characterization Report, and the Location Recommendation Report. Final decisions will not be made until the end of the review period, and the Department will consider any review comments received from the State or others in arriving at its decisions. The comments made during these reviews will be incorporated in the documents before the documents are released to the public.

If I can assist you further with regard to this important program, please let me know.

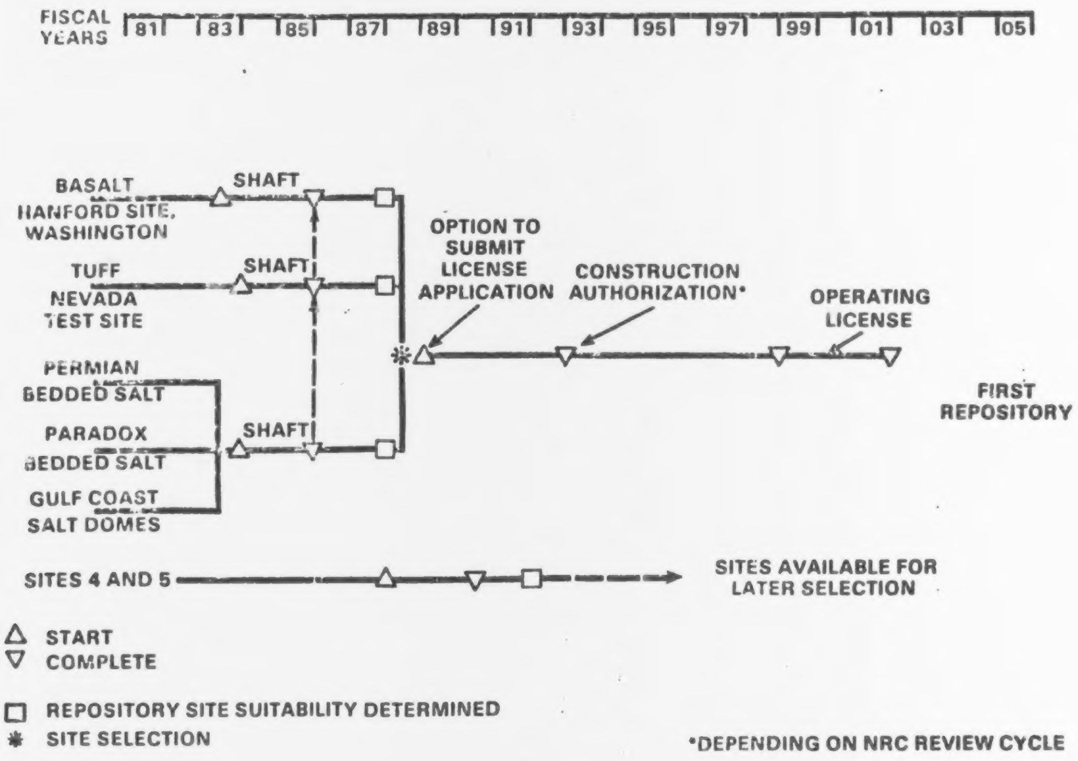
Sincerely,

James B. Edwards

James B. Edwards

Enclosures

PROGRAM PLAN FOR FIRST REPOSITORY
January, 1982


FISCAL YEARS
81
83
85
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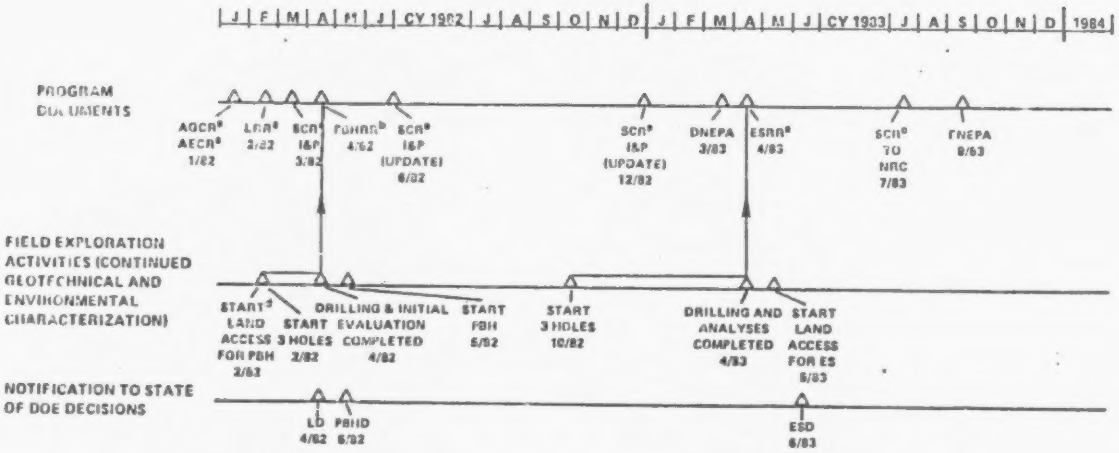
89
91
93
95
97
99
01
03
05
BASALT
HANFORD SITE, WASHINGTON
SHAFT
TUFF
NEVADA TEST SITE
SHAFT
PERMIAN BEDDED SALT
PARADOX BEDDED SALT
GULF COAST SALT DOMES
SHAFT
OPTION TO SUBMIT LICENSE APPLICATION
CONSTRUCTION AUTHORIZATION*
OPERATING LICENSE
FIRST REPOSITORY
SITES 4 AND 5
SITES AVAILABLE FOR LATER SELECTION
△ START
▽ COMPLETE
□ REPOSITORY SITE SUITABILITY DETERMINED
✱ SITE SELECTION
*DEPENDING ON NRC REVIEW CYCLE

FIGURE 1.

PROGRAM PLAN FOR PALO DURO BASIN, TEXAS
JANUARY 1982



AGCR – AREA GEOLOGIC CHARACTERIZATION REPORT
AECR – AREA ENVIRONMENTAL CHARACTERIZATION REPORT
LRR – LOCATION RECOMMENDATION REPORT
SCR – SITE CHARACTERIZATION REPORTS (FOR NRC)
SCR I&P – DRAFT SITE CHARACTERIZATION REPORT ISSUES AND PLANS
PBHRR – PRINCIPAL BOREHOLE RECOMMENDATION REPORT
ESRR – EXPLORATORY SHAFT RECOMMENDATION REPORT
DNEPA – DRAFT NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENT
FNEPA – FINAL NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENT

LD – LOCATION DECISION. DOE NOTIFIES STATE OF PENDING DECISION 10 DAYS BEFORE DECISION IS EXPECTED. NOTICE OF DECISION IS SENT TO STATE.
PBHD – PRINCIPAL BOREHOLE DECISION. DOE NOTIFIES STATE OF PENDING DECISION 10 DAYS BEFORE DECISION IS EXPECTED. NOTICE OF DECISION IS SENT TO STATE.
ESD – EXPLORATORY SHAFT DECISION. DOE NOTIFIES STATE OF PENDING DECISION 10 DAYS BEFORE DECISION IS EXPECTED. NOTICE OF DECISION IS SENT TO STATE.

[a] PREPARED BY BATTELLE BASED ON DATA GENERATED BY SWEC, NUS, AND TBEG; START OF REVIEW BY DOE AND STATE OF TEXAS. STATE REVIEW IS 45 DAYS, PRIOR TO DOE ACCEPTANCE. STATE COMMENTS INCORPORATED INTO DOCUMENT PRIOR TO FINAL RELEASE TO PUBLIC.

[b] AVAILABLE TO STATE 10 DAYS BEFORE DOE DECISION TO PROCEED.

[c] AVAILABLE TO STATE AT SAME TIME SUBMITTED TO NRC.

[d] INITIATE NEGOTIATIONS WITH MULTIPLE LANDOWNERS IN SWISHER AND DEAF SMITH COUNTIES TO BEGIN ENVIRONMENTAL SURVEYS AND TO OBTAIN OPTIONS FOR ALTERNATE DRILL SITES FOR PBH (ONLY ONE OPTION IS EXPECTED TO BE EXERCISED AFTER PBHRR HAS BEEN APPROVED BY DOE AND STATE HAS BEEN NOTIFIED PER PBHD).

FIGURE 2.

Mr. OTTINGER. Let us hear from Utah next. They have some real problems in their dealings with the Department. Ms. Christofferson, we are glad to have you with us.

STATEMENT OF JULINE CHRISTOFFERSON

Ms. CHRISTOFFERSON. I do appreciate the opportunity to provide you with the perspective of a State that is right now looking at a specific site on the ground where not only the principal borehole would go, but where the repository would go. It was not but 2 weeks ago that the Governor, Scott Matheson, and Mr. Frank Coffman from the Department of Energy as well as the repository task force visited the site on the ground, looked at the areas where the repository would go, discussed the problems of dealing with flash floods and interference with settling ponds, and looked at transportation routes. We also looked at a model prepared by the Department of Energy for that site that shows in detail the access routes for power, for water, for the waste that would be coming in. We looked at the repository as it is designed to nestle in the canyon there.

Our concerns with regard to where DOE is in the siting process reflect the fact that we feel so much closer to being the salt site that is taken into the next stage of the game, and our concern is the result of having arrived at that point in a very short period of time.

Last November, when the public hearings were held, or public meetings sponsored by the task force, the public was asked to review four different sites in the State of Utah. It was not but 2 weeks later we received the printed document giving us the overall characterization work for the paradox and environmental document.

At the same time, we received the document indicating that the Gibson dome site would be the site selected to be taken into the location studies phase. We were given those documents in the morning of our December task force meetings and asked to review them and comment on them that same day. The task force members were somewhat concerned given the fact that we had previously arranged a 90-day comment period on all documents from DOE because of the technical nature of the documents and the need to understand the underlying information. We did arrange for a 30-day period for review.

The point there being clearly at the time the public was asked to review the four sites, a document was already at the printer's that had identified the site that would be the repository site if Utah is selected. Very shortly thereafter we received a document from the Department of Energy, a community framework analysis, which we were asked to respond to, and have. We received a water availability study—actually it is a water conservation study. The initial page of the study indicates that water availability was not considered. It was simply identifying sources.

The document was printed in draft form in January 1981. We had no idea that it existed until it arrived in the mail. The document is sadly lacking in terms of what a study of its nature should include. We provided our comments and have not yet received any information with regard to how they intend to proceed.

All in all, the Department of Energy has come to its point in Utah very, very quickly. We are not satisfied that the underlying information on which they are basing their conclusions is indeed accurate. There have been a couple of instances where we have managed to get ahold of that information, usually by accident. There is a lot that we are not aware is in existence. The press gets a copy of this or a conservation group gets a copy of that and brings it to us, and in a number of instances after reviewing that underlying document we have been able to make recommendations, make criticisms based on the discrepancies there.

Our feeling is that the State of Utah knows a lot more about its resources than do the contractors who are hired out of Boston or San Francisco or Columbus, Ohio, and we have a fair amount of expertise that we can offer to people who seem to be sitting down with maps and simply drawing lines on those maps in an effort to decide where to go next or how to do something next.

We have had a great deal of concern over a recent engineering briefing that we received at the task force meeting 2 weeks ago. One of the tables in that engineering briefing document indicates that the Utah salt is a winner in something like seven out of nine categories in terms of comparisons with the Texas site, the Mississippi and the Louisiana sites.

We asked immediately for the underlying information and the person from DOE sort of hemmed and hawed and said we will see what we can get you. About a week later there arrived in the mail a document that was printed in September 1981, that shows that comparison. There is also an attached request from one of the DOE officials to the contractors asking for all of the ongoing information that is being provided to support the underlying basis for that. The note that we got attached to that document says basically, this is really not a complete study, much of the study is not done; it is not available. Well, we have one copy and we certainly made significant portions of it available to the task force. We have not had a candid relationship with the Department of Energy.

I think another area that has been of great concern to us is with the request for information regarding the actual repository designs. We have made requests in our task force meetings for information regarding the repository itself, and I think if you look at the site that they have ended up at in Utah, you can understand why we are a little bit concerned about impacts, not just from the repository itself, but from the transportation.

Also at this last engineering briefing meeting we were informed by a footnote in the engineering document of the existence of another document that is dated March 1981 that outlines in fairly detailed outline what a repository looks like and what the engineering considerations are. It gives a lot of information that we have been asking for. Conveniently they arranged to bring along a couple of documents. We said, knowing that we did not have the documents, do we have these? Their answer was, well, we are not sure you do.

In response to our request for an EIS, one of the first answers we received was there is not sufficient data available to do an EIS that considers generic repository impacts. That document has been in existence. We now have it, and we received it approximately a year after it was printed and available.

It is very difficult for a State with our resources to put together a team that can ferret out the information itself. Early on, and I would say up until January of this year, we relied upon the Department of Energy to provide us with information. Clearly that was a mistake, and it is now up to us to file Freedom of Information Act requests, so that we get that information. It is difficult not knowing what is out there, but we also within the last 3 days, I would say, received a statement of their ongoing work for the months of January through March of 1981, which will be helpful to us in determining what it is that is actually being done in this State.

I think clearly one of the most important aspects of national legislation is the State consultation process, and it has to be a process that does not simply institutionalize a mechanism that we are seeing operating now, and that mechanism is that DOE has its subcontractors and contractors do the work, they sift through the information and they file briefing documents, documents that are basically conclusions of information that other people have done.

It is not only difficult to determine who all is doing what work, but it is very difficult to take the time to review all that information. I think that, in our experience, the role of the State in insuring that adequate study is done and that the information is correct, is very important.

One example of that is our review of the water conservation study. It was suggested that the Colorado River would be available as a source of water to supply the repository. Had they contacted the State officials, they would have learned not only that the Colorado is already overappropriated, but also if you take water out of the Colorado at that particular point in the river you will undermine the desalinization program that we have had ongoing for a number of years. That is one example of the kind of review, observation that we can provide and do provide. But if we do not get the information in a timely fashion, we cannot review and have input as the decisions are being made.

Our response to the comments that were made earlier by Secretary Edwards with regard to his ability to accelerate the program is in terms of the way they have been proceeding: They certainly can. I think that they are very close and have a great deal of information about the state of the Utah site. I do not think that they have that much information about the other Utah sites, and I am a little bit concerned that given the tendency or the inclination to accelerate, a site that is not a particularly good site for a repository will be taken into that final tier for selection of a repository, which takes me to the next point that we are very much concerned about.

Early on in our task force dealings with the Department of Energy, we began making requests for implementation of the NEPA process. If you go back and look at the generic environmental impact statement that was done, it basically makes a decision between dropping it in the ocean, shooting it to the Moon, and comes to the conclusion that the best way to dispose of this is through deep geologic burial. That document outlines a number of NEPA suggestions for tiering a NEPA process.

We initially had a commitment from the Department of Energy that that tiering process would be used, and we have in the minutes of our meetings statements that they in fact would do a number of EIS's before the final one, which is for the purpose of selecting the repository. I think one of the advantages you would have in requiring implementation of the NEPA process and an appropriate tiering of EIS's and supplementing of EIS's as you go along, would be that the public could be involved in a meaningful fashion. I think you are going to hear from Department of Energy that in Utah there has been meaningful public involvement. I would like to point out that all public meetings have been sponsored by our task force, not the Department of Energy. I was not around for the one in 1980, but was for the one in 1981. The public asked question after question, and some of it very detailed, about transportation issues, water availability, socioeconomic impacts. The response from the Department of Energy came out a couple of weeks ago. They have taken the transcript from the hearing, listed the questions that were posed, and they have keyed the questions to specific points in the briefing rather than providing any additional information to the people who were asking questions; they simply said, "We gave it to you in the briefing, and here is how we are responding."

The people who posed those questions have not received copies of that document. There are some of us who have, but it is now up to us, the State of Utah, to make sure that the public even gets copies of those responses, as limited as they are. If a NEPA process were implemented which required an EIS at the exploratory-shaft stage I think it would give an excellent opportunity for the public and the States involved to take a good look at where DOE is with regard to the various salt sites specifically.

I would like to back up for a second. In Utah we are not at the exploratory-shaft stage, but we are getting ready to do some work that would take us into the exploratory-shaft stage. BLM required DOE to do an environmental assessment on that. It was prepared by DOE for BLM. BLM was given a short time to review that document, and basically said this is not quite complete. It was rushed to the printers anyway. They have received 128 detailed letters from the public, and by detailed I mean detailed, 20 or 30 pages of comment. The environmental assessment describes an incredible amount of activity over almost 400 square miles of land, and remember that this land is land that was originally suggested to be included in the Canyonlands National Park, but was not for grazing reasons and other resource conflicts.

My point is we have got the Department of Energy who is saying no significant environmental impact. We have the public who is outraged and saying good heavens, we would not let private industry do this on Federal land, how can you let the Department of Energy do that. We are waiting for a decision as to whether or not BLM will require DOE to do an EIS just on the location studies phase there. We should get that in July. I suspect that the decision will probably be that the EA will be satisfactory and that they will come out with a revised version of it. Nevertheless, the standard for determining environmental impact should not be what phase of a study you are in or how much money it is going to cost the Department of Energy to do that particular phase of study. I think in order to insure that every single site that is taken forward in the selection process is not only good for the next phase of study but also good for repository, you really do need some type of public involvement, you need comparative analysis, and as defined by the CEQ regulations. I think what you need is an environmental impact statement.

In your bill, for the preliminary phases you require an environmental assessment for location studies phases. An EA is traditionally done for the purpose of determining whether or not there will be significant environmental impacts. If there are not significant environmental impacts, then you do not do an EIS. If there are going to be, then that should be the logical result of that activity. I think that in order to insure good comparative analysis of the salt sites before a salt site is selected, that an EIS should be done on those salt sites. It does not make sense, since that is the only medium in which you are really doing comparative screening—you are not doing it in the basalt, you are not doing it in tuff. You already have the sites. You have the spots. You are not there comparing nationwide tuff sites or basalt sites. In order to insure that the logical outcome of that site selection is the best salt site, I recommend that an EIS be done comparing the alternatives and taking into consideration, to the extent possible, the repository design data that is available at that stage.

At the next stage you supplement to the extent necessary. You do not have to duplicate information. The information that was valid can be used. Additional data that needs to be generated can be generated. It is a tiering process that can work and does not necessarily result in a gross extension of time of an already speeded up siting process.

With regard to the issue of criteria for site selection, we also have some very strong feelings. In the State of Utah it has become apparent that site selection has been made on the basis of geologic criteria. Our State is a unique State in many ways, and every time we turn around we are faced with resource conflict. The subsurface resources frequently are in conflict with the surface resources, not just with national parks, but with grazing use, recreational use of one sort or another. It does not make sense to have only geologic criteria in place to the point where you select your repository.

There needs to be comprehensive criteria developed to insure that every site that is taken into that next stage is suitable for a repository. In Utah, the site that has been selected is indeed a mile and a half from the boundary of Canyonlands National Park, and access to the repository would be off the main road where tourists would travel in and out of that park. It is also in an extraordinarily rugged canyon area. The costs of putting a railroad in there are going to be prohibitive. The costs of getting water there, if water is available, would be prohibitive. We are talking about drilling holes through 30 or 40 miles of sandstone canyon just to get water pipes in there. The blasting that will be done in order to build a railroad will have significant park impacts. I think the bridge that would have to be built across the Colorado River poses some extraordinary transportation risks that perhaps we do not have to face if we go about the siting process in the appropriate fashion. Those criteria need to be in place before the Department of Energy is allowed to go any further with its siting process. Those need to include the esthetic considerations that the public is outraged about, and it needs to include the transportation issues.

I would like to repeat a conversation I had with a Department of Energy engineer as we were standing at the Needles Overlook looking into the park. I asked him at what point esthetics would be factored into the overall siting formula, and his response to me was "The public will have to decide that." I said, "Well, at what point can the public do that?" Again, "The public will have to decide that." And I think that you have an excellent opportunity to put into law a process that would allow public involvement in something that is a very complicated issue.

The other issue that we feel very strongly about of course is impact assistance, and we are a little disconcerted that there are efforts being made to require the State to pick up 25 percent of the tab for the monitoring activities and for actual impact assistance. We are not a heavily populated State. It will be very difficult for the State of Utah to come up with funding to adequately do the monitoring that needs to be done, and quite frankly, I think our State needs to do a fair amount of that monitoring. We need to be able to do more of it, because we are not entirely confident that what is being done is being done accurately and thoroughly.

The impact assistance that needs to be in place needs to be in place before the impacts occur to the community. In order to get infrastructure in place we figure we need about a 2-year leadtime to have the financing arrangements made, to have the actual capital facility structures under construction. And it is very important that the communities, and we are talking about very small communities, are not impacted to the detriment of what is considered to be in the national interest. If this problem is a national problem, then so are the impacts, and the users of that nuclear power should be forced to pay as well for the impacts that result from its disposal. The State of Utah—in fact, those communities down there now—are paying for infrastructure that was financed during the boom end of the uranium cycle in those communities, and now they are being asked to consider picking up some of the impacts at the tail end of that disposal cycle. I think careful consideration needs to be given to any added stress to those communities.

Mr. OTTINGER. Thank you very much.

Mr. Tierney.

STATEMENT OF JAMES TIERNEY

Mr. TIERNEY. Thank you, Congressman.

When I became attorney general of the State of Maine in December 1980, Gov. Joseph Brennan and members of the legislative leadership collectively requested that I place under very close scrutiny an application by the only nuclear powerplant in Maine to triple the amount of nuclear waste which will be kept onsite. Additionally, the utility has proposed pin compaction as its method to accomplish its goal. Pin compaction is a method which has not been used at any commercial reactor in the United States and has never been fully approved or licensed by any governmental agency.

With that in mind I intervened in that case in order to make the applicant prove every condition of its application. In doing so I have become intimately aware of some of the difficulties inherent in this kind of a proceeding where a State attempts to intervene before the Nuclear Regulatory Commission in a highly complex area, one which all the people in our State find extremely important. I would like to share briefly this afternoon some of my insights into that process and some suggestions specifically with regard to the legislation before you and with regard to the Senate bill, which I understand was passed and sent to you recently.

I think I can boil the suggestions down to two in number. First, I feel that S. 1662 repeats many of the old mistakes which have been made from the beginning of nuclear power licensing in this country. I think it is significantly wrong—and I think, Mr. Chairman, from your questions this morning, I think that I may be preaching to the choir—it is wrong to shortcut this process. Even if Secretary Edwards is correct that there is no technical problem in dealing with nuclear waste, and I happen to think he is wrong, I think we are dealing with serious safety issues. Even if he is correct that we do not have a technological problem, you have a huge political problem if the nuclear option is to remain viable in this country. The people just do not trust the process itself, the procedures, or the governmental agencies involved, and you are going to have to be sure that any process coming out of the Congress in dealing with nuclear waste is fair and open to everyone.

The bill you have before you does not do that. Interim licensing makes no sense at all. It is the antithesis of a license. Whether it is a license to drive a car or practice law, license means the Government is approving something. It is a representation to the public that what is being done is OK, and that the people doing it know what they are doing. Interim licensing is the opposite of that. It does not make any sense. It is absolutely wrong. Hybrid licensing in some situations could work, but I suggest you deal with those of us who have experience in intervening in cases before it is adopted, because it is extremely technical.

Second, be very careful of the language placed on the Senate bill by Senator McClure which essentially eliminates the need for waste confidence proceedings under way by the Nuclear Regulatory Commission. That language preempts the laws which exist in seven States, including my own, which states that no nuclear plants will be constructed in our jurisdiction until we are satisfied that the waste question will be dealt with. That language in the Senate version is unacceptable and wrong and does not make sense.

It does more than preempt my statute. It preempts a live case before the U.S. Supreme Court out of the ninth circuit, the California case, where over 30 States have signed on behalf of the State of California asking for our States to retain residual powers to protect the health and safety of the people. That is a bipartisan decision, Mr. Chairman. We are asking to retain those residual rights which we have when dealing with coal and oil, and we are afraid it may be taken away from us in nuclear power if you are not careful.

Mr. OTTINGER. What provision are you referring to?

Mr. **Tierney**. The McClure amendment, which was added at the last moment without public debate or discussion, which essentially says that the mere passage of the legislation in and of itself states that there is confidence in the dealing with nuclear waste. It is not based on anything, any more than Mr. Edwards' statements this morning. Because it says it and specifically directs itself to any judicial or administrative proceeding in any State or Federal court, it would be extremely persuasive and conclusive upon a legal action which may be brought by a sovereign State. I think you will hear more about that in your hearings later this week.

The second big thing is I do not want this Congress to be distracted from the long-term solutions under the pressures of short-term rhetoric. We do not need monitored retrievable storage. I think we need an open process allowing the nuclear wastes to remain in the communities where they are generated. They should take responsibility for the wastes generated until we have a long-term permanent problem.

To the best of my knowledge I do not think Maine is on the list of States of potential sources. I was moved by the testimony from the State of Utah and sense of frustration that they may end up to be the long-term spot without the necessary safeguards. Do not be distracted by that. The procedures are available to handle these, and let us keep our eye on the long run.

Mr. **Ottinger**. Maine may well be on the list eventually, since there is a lot of scientific opinion that it is the best repository.

Mr. **Tierney**. We are not first in line asking for it. None of us are. We are basically paying for the back-ended cost of nuclear power, which we were told originally was inexpensive and we know it isn't.

Mr. **Ottinger**. Mr. Robinson.

STATEMENT OF STEVE ROBINSON

Mr. **Robinson**. I am Gov. Robert List's representative to this issue. Since he will appear Thursday before the committee, I will not detail his presentation from the Nevada perspective.

I might speak briefly to your question about our relationship in the past with U.S. DOE. The relationship that has developed in Nevada over a period of 30 years with the Nevada test site and the weapons test center has been a good one and it continues to be with the people on site. The top person in Nevada, the top U.S. DOE person in Nevada, we have a good relationship with, and I think it has been a candid one.

What gives us cause and alarm is the experience surrounding States have had such as Utah and New Mexico when the siting process is actually started, and given the fact that this is such a long, long-term process, will be a long-term process, administrations will change, characters will change, relationships between the State governments and the U.S. DOE will change, I think it is important, vital, that your legislation be structured so that at every step along that process consultation and concurrence and a free flow of information is mandated, and it will not have to rely on personal relationships.

Thank you, Mr. Chairman.

Mr. **Ottinger**. Thank you.

Mr. Brown, you are appearing for the National Governors' Association?

STATEMENT OF HOLMES BROWN

Mr. **Brown**. Yes; I am Holmes Brown, representing the National Governors' Association. Governor List will be presenting testimony on our behalf on Thursday. I will not reiterate that.

There are two points I want to make. One issue that has not been mentioned, and I realize this lies largely within the jurisdiction of another committee, is the test and evaluation facility. We are concerned that a test and evaluation facility without adequate procedural protections could be converted to a final repository. We would ask that this committee examine that problem to make sure that there are regulatory and environmental protections associated with a T&E facility.

I would also like to echo the remarks of the attorney general about the McClure amendment. We are very much concerned about that. It is a matter of principle, not just involving nuclear power. The amendment sets a dangerous precedent for Congress to preempt State laws.

Lastly, it should be evident from testimony thus far the States are very anxious to cooperate with the Department of Energy and the administration in finding a solution for the high-level waste problem. What we are asking for is adequate administrative protections, and full information about the repository.

Thank you very much.

Mr. **Ottinger**. Thank you.

I recognize counsel for questions.

Mr. **Ward**. Dr. Taylor, have you had experiences similar to Utah where information was given to you on the morning of a meeting or given to you late or you were not advised of specific information?

Mr. **Taylor**. For the most part, the information that we have received from DOE has come in a timely manner regarding meetings. There have been some instances where the notices of the meetings were still in the mail at the same time we were on the airplane going to the meeting, but generally speaking that has not been the case. Our main problems have been in trying to convince the DOE that because this is a Federal program they are responsible for making available to the public information about that program rather than relying upon the individual States, and we have been trying to get the DOE to put together a public information program. There has been some problem with that. And as was mentioned this morning, several documents have either not been delivered to us, several decisions that have been already scheduled to have been made have not been made, and one document has been withdrawn and is now being rewritten and will be submitted to the State.

Mr. **Ward**. DOE has issued a list of criteria for selecting a site of about 10 to 14 points. To your knowledge, is the DOE looking at all those issues in its criteria, or is it only looking at a small number of them?

Mr. HOLLOWAY. The DOE in the Palo Duro area to date has been primarily concerned with the thickness of salt and with the depth of salt below the surface and to a lesser extent with the rate of dissolution, the extent to which water dissolves the salt around the edges of the deposits.

Other factors on which they have not gathered adequate data in our opinion, and must be gathered before any final decisions are made on an exploratory shaft, due next year, has to do with the deep basin hydrology, the extent to which water movements underneath the salt deposits may threaten the long-term stability of a repository.

Matters of seismic activity in the deep basin area is not adequately understood, so I think, in summary, they are paying attention primarily to the depth, thickness and to a lesser extent on some of these other criteria. These are criteria of their own, by the way, as worked out in consultation, I understand, with the Nuclear Regulatory Commission.

So we have concern that they have not yet addressed some of the technical scientific questions which must be addressed to meet their own criteria, in order to have any hope of having such a repository licensed by the NRC.

Mr. WARD. Now, there was some discussion earlier about acclerating the decisionmaking schedule and selecting a site 1 or 2 years before presently anticipated. What impact would that have on the data base for selecting a site and on the ability of the State to be an effective participant in the process?

Mr. HOLLOWAY. Let me answer that in two ways. I think, generally, that the dates in the staff draft which we are asked to examine are reasonable if the DOE works closely with the states and in good consultation process that prevents delays from occurring because information is not available or because there are meaningless disagreements, so I think that those dates are reasonable.

If you ask whether they can speed up the program compared to what is now on the books that we are aware of in the Palo Duro, I think they would have a very difficult time being able to do that and at the same time be able to gather the technical information that is absolutely required under their own criteria to meet NRC licensing requirements. I don't think they can speed up.

Ms. CHRISTOFFERSON. I would concur with that. The site they are looking at in Utah is going to require a fair amount of surface types of monitoring including some fairly extensive meteorological data collection, because of the proximity to the park. And I think that under our state implementation plan, they are required to collect 2 years of data for that.

So, given that, we have some endangered species problems there; we have got archeological sites; and considerations that need to be given to Indian tribes and their rights regarding those in the area. I think that it is going to be really tough for them to go ahead with a much faster process than what they have got going.

Mr. HOLLOWAY. I should add to that, looking at the schedule which the Secretary submitted to Governor Clements call's for—these were plans put together in March by DOE—a decision, a location decision, that is a fairly narrow geography for further investigations, and a decision on where to place a pilot bore hole that would precede eventually a large shaft 12 foot in diameter. The first decision is to be made in April 1982, and the final bore hole decision in May 1982.

Neither of those decisions have been made. In fact, the State review of the location recommendation report which was due in February has not even come to the State for review yet, so the track record is that DOE can't meet their current schedules, so I don't see how they could speed it up.

Ms. CHRISTOFFERSON. And in Utah we are getting our documents early.

Mr. OTTINGER. I wonder if Secretary Brewer, could respond to the concerns that are expressed here. It has certainly been my concern that state public concerns are not going to be adequately addressed by the department proceeding. To the extent that we short-circuit mandated public participation this problem is going to become aggravated. Mistakes are going to be made that could well have been avoided.

Is the way Utah has been dealt with what other States can expect from the Department? Is their characterization accurate?

TESTIMONY OF SHELBY BREWER—Resumed

Mr. BREWER. Mr. Chairman, it would appear from the testimony this afternoon that the States are certainly not pleased with the Department of Energy. I would like to reemphasize Secretary Edward's commitment to fully cooperate and coordinate with the States in the whole entire siting program.

We have met with Governor Matheson, the Secretary and I, extensively, about 6 weeks ago. I have sent the director of the waste management program to Utah to meet with the Governor, and to go over in detail his specific concerns.

In Texas we have a similar relationship. Dr. Holloway cited a moment ago the tardiness in responding to Governor Clements' request for a decision schedule, a time line schedule for the State, for the entire national program for that matter.

One of the reasons that was tardy was in fact that we were iterating with Dr. Holloway on the contents of the letter, which points out, I believe, Mr. Chairman, the cooperative and coordinative motif of this program

There were several reports cited by Mr. Markey this morning that are alleged to be late for the State of Texas. The first is an area geological characterization report, dated January 19, 1982. It is my understanding that that has been delivered and was on time.

A second area, the environmental characterization report was delivered in December 1981. A location recommendation report, was sent in February 1982. This is the one that I understand is being redrafted, at the State's request, or based on the State officials' specific input. There is one March 1982, a SCR--I am sorry, not an SCR but a principal bore hole recommendation report, which is late.

Mr. OTTINGER. I suppose there are a couple of things that are of concern. One is a failure to get information that is available from the State. The second is the furnishing of documents with insufficient time to examine them or insufficient time for meaningful input.

I think that is really what we are concerned about in drafting the legislation. That will continue to occur, and in fact DOE is going to make its decisions first and seek to justify them afterward.

Mr. **Brewer**. That is not our intent, Mr. Chairman. It is not our intent to hurry up a State review to provide documents late and give them 24 hours to turn them around. That is not our intent. It perhaps—I say perhaps—has occurred a couple of times in the past. If so, that will be promptly corrected.

Mr. **Ottinger**. Should there be an environmental impact statement on matters that have substantial environmental concern at the characterization stage? I take it there are very considerable environmental concerns at the Utah site, for example. Should those not be studied thoroughly?

Mr. **Brewer**. Our current plan, Mr. Chairman, is to prepare an environmental assessment at the stage of site characterization, and a complete environmental impact statement, a la NEPA, at the point of decision among the several sites.

Mr. **Ottinger**. Does that mean that small matters like the availability of water——

Mr. **Brewer**. I think that is an inordinately important matter, Mr. Chairman, and I don't want my remarks to be construed to be otherwise. That is why we have such an extensive State coordination and collaboration program.

Mr. **Ottinger**. Utah says the fact they weren't consulted. Proceedings were conducted on the States with the assumption that water was available when in fact in was not. That is the kind of acceleration, it seems to me, which is highly undesirable. You don't want to spend huge amounts of money and then find out at the time of full environmental impact statement to the President has to make his decision, and all that work has gone to waste?

Mr. **Brewer**. I quite agree I would expect the water resource allocation to be understood during the State collaboration and cooperation period, and evidently it has been.

Mr. **Ottinger**. And the same would be true providing adequate transportation facilities and electricity. Don't you have to know that, have some certainty about it before you proceed?

Mr. **Brewer**. Yes. If it is clearly out of the question, we would not think of proceeding, but I think these matters will be——

Mr. **Ottinger**. How were those matters and the public's input into the concerns going to be addressed, if formal procedure was going to be conducted.

Mr. **Brewer**. They will be addressed, Mr. Chairman, in the preparation of the environmental assessment. They will be addressed during the cooperation and collaboration phase of the program with the States, and they will further be addressed in more formal terms at the EIS stage.

Mr. **Ottinger**. A lot of water will have flowed under the dam by the time you have gotten there. A lot of environmentally significant steps will have been taken. I think that is what the States are concerned about. It isn't very reassuring to hear Ms. Christofferson's account of the degree to which the States' opinions have been taken into account so far and how the public has been permitted meaningful participation.

The public raises questions. Do you intend to answer those questions or do you intend to slough them off by saying, "We covered that in the briefing statement" whether you did or not?

Mr. BREWER. We will answer the questions, Mr. Ottinger.

Mr. OTTINGER. Why wasn't it done?

Mr. BREWER. Sir?

Mr. OTTINGER. Why wasn't it done?

Mr. BREWER. I am not thoroughly briefed on the detail of Utah's complaint. I will look into it.

Mr. OTTINGER. It certainly leans me toward having more formal requirements. In the contracting procedure, you have this provision for contract with the State.

Can the State refuse to enter into an agreement with you, and effectively stop you from proceeding, unless there is provision in the contract for a full environmental impact statement containing a study of the problems that they perceive?

Mr. BREWER. If they refuse to enter into an agreement with us, what would our next step be?

Mr. OTTINGER. Yes.

Mr. BREWER. That has not occurred to date, so I just don't know.

Mr. OTTINGER. Could they provide the kind of studies that would be required under the EPA process?

Mr. BREWER. Yes, I would think so.

Mr. OTTINGER. Ms. Christofferson, do you or anybody else want to comment?

Ms. CHRISTOFFERSON. I would like to comment on that. We were under serious negotiation for establishment of a consultation and concurrent agreement last fall, and we began asking about the NEPA process, when that would be implemented. We made an effort to get language for compliance with NEPA in the cooperative agreement, and discussion was dropped.

It was immediately thereafter that we were inundated with the six different documents that we were asked to review, and really didn't have a lot of time to spend on pursuing that process.

I would like to also make a comment. The documents that we have received to date have all been in preliminary draft form or draft form. We have provided comments to the Department of Energy, and we have not yet seen a second version of any of those documents that takes it out of the preliminary draft form.

It would seem to me that it is imperative that DOE not just go out and hire contractors to do work to get the study done, but actually respond to the States in second versions or in formal responses with information.

We also really need to be involved with the contractors. It has to be a process that we can look at carefully because we do have concerns that the information is not being gathered in the appropriate fashion. It would be very helpful if we could have access and communication with contractors, as all of this is being done.

Mr. OTTINGER. Secretary Brewer, do you intend to let that kind of exchange go forward?

Mr. BREWER. I will consider that.

Mr. **Ottinger**. I want to thank you all for your help to the subcommittee. We will certainly take your comments and concerns into consideration.

Ms. **Christofferson**. Thank you, Mr. Chairman.

Mr. **Ottinger**. The hearing is adjourned.

[Whereupon, at 2:15 p.m., the subcommittee adjourned, to reconvene Thursday, June 10, 1982.]

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NUCLEAR WASTE DISPOSAL POLICY

THURSDAY, JUNE 10, 1982

House of Representatives,
Committee on Energy and Commerce,
Subcommittee on Energy Conservation and Power,
Washington, D.C.

The subcomittee met, pursuant to notice, at 10:20 a.m., in room 2322, Rayburn House Office Building, Hon. Richard L. Ottinger (chairman) presiding.

Mr. Ottinger. The subcommittee will come to order. I am sorry we were delayed by a vote in the House.

We are pleased to start off the continuation of our hearings on nuclear wastes with the Honorable Strom Thurmond, the Senator from South Carolina. We are glad to have you with us. We will put your full statement in the record today and you may proceed.

STATEMENT OF HON. STROM THURMOND, A U.S. SENATOR FROM THE STATE OF SOUTH CAROLINA

Senator Thurmond. Thank you very much, Mr. Chairman. I would like to thank you and the other members of the subcommittee for allowing me to appear before you today. My comments will be very brief because I know you have a number of other witnesses scheduled to testify and because I have to return very shortly to a meeting.

Mr. Chairman, I requested this opportunity to testify because of the importance of the issues raised by the legislation before you. In particular, proposals regarding Federal interim storage of commercially generated spent fuel have triggered my interest and that of the people of South Carolina, and I would like to share with you my views on this matter.

As you are aware, the currently idle Barnwell Nuclear Fuel Plant located in my State has been discussed by DOE and others as a potential interim storage site. This is obviously not a very popular idea in South Carolina because our State already hosts one of the Nation's three low-level waste burial sites and stores millions of gallons of high-level defense waste at the Savannah River plant.

Let me assure you, however, that while the fact that an interim storage facility may be located in my State has heightened my interest in this issue, my opposition to a Federal interim storage program is broader than a desire to protect parochial interests. After having carefully studied the need for such a program, I have come to the conclusion that a Federal program, particularly one of the magnitude established by the Senate bill, is unnecessary regardless of where the nuclear waste may be stored.

When S. 1662, the Nuclear Waste Policy Act of 1982, recently came before the Senate, Senator Hollings and I, together with Senators Moynihan, D'Amato, Percy, Dixon, Tsongas, Humphrey, and Matsunaga, offered an amendment to strike the provisions of that bill which authorized a Federal away-from-reactor, interim storage program for 2,800 metric tons of spent fuel. This amendment, which would have left expedited licensing provisions intact, failed by only three votes. I repeat, only three votes.

Many Senators favor, as do I, placing responsibility for interim storage clearly with the utilities, while assisting them in this task by enacting licensing reforms and by helping with the commercialization of new storage technologies. Rather than using this forum for an in-depth explanation of my reasons for taking this position, I ask the chairman's permission to place in the hearing record the floor statement which I made in support of the Thurmond-Hollings AFR amendment.

Let me summarize my views briefly by saying that there are options available to utilities to expand on-site storage, including promising new technologies of demonstrated effectiveness such as fuel rod compaction and dry cask storage. My floor statement discusses in detail such matters as the timely availability of these options and whether they are likely to be licensed. Storing spent fuel onsite has the advantages of being cheaper and avoiding unnecessary transportation of nuclear waste. Finally, by not becoming involved in the establishment of unnecessary interim storage facilities, the Federal Government can devote more time, attention, and money to achieving a permanent solution to the nuclear waste problem as soon as practicable.

H.R. 3809 as reported by the Committee on Interior and Insular Affairs differs rather significantly, however, from S. 1662 with regard to interim storage, and I would like to briefly comment on some of its provisions. While I obviously prefer the approach taken by the Thurmond-Hollings amendment, the interim storage provisions of H.R. 3809 are, in my view, preferable to those found in S. 1662.

The House bill comes closer to establishing a truly limited, last-resort storage program to aid utilities who have made a good faith effort to meet their own storage needs but are still unable to provide sufficient storage capacity. I therefore caution against any weakening of the provisions found in H.R. 3809 or any movement toward the Senate AFR provisions.

For example, I do not think that the 1,700-metric-ton limit in the House Interior bill should be increased to 2,800 metric tons, as authorized in S. 1662. The latter figure is simply more storage than will be necessary if the Federal program is truly to serve as a last-resort option and could encourage unnecessary use of Federal storage facilities.

I would also urge this subcommittee to retain strict acceptance criteria for access to Federal storage. Section 133(b)(1) of H.R. 3809 requires the Secretary of Energy to determine that adequate storage capacity is unavailable and cannot be made available in a timely manner. This language is tighter, and therefore preferable in my opinion, to the Senate language found in section 302(a) of S. 1662, which directs the Secretary to determine that a utility cannot reasonably provide adequate storage capacity onsite or within its system.

I understand that the subcommittee is considering a draft proposal which combines the licensing provision found in S. 1662 with those found in H.R. 3809. As I indicated earlier, I think that the Congress should enact licensing reforms, and a carefully drafted combination of these provisions should resolve most concerns that the utilities have regarding their ability to obtain NRC licenses for onsite storage expansions and transshipments. Another change which I understand is under consideration, and which I would support, is to have the Nuclear Regulatory Commission, rather than the Secretary of Energy, determine whether a utility should have access to Federal storage.

I would like to suggest two additions to the bill which the subcommittee is considering, in the event that a decision is made that an interim storage program is necessary. First, I believe that there is a need for a provision which assures that the Governor and legislature of the State or States which host these interim storage facilities will be involved in decisionmaking regarding such facilities and that they will be kept properly and currently informed of all activities. S. 1662 contains a rather detailed AFR State participation procedure, of which I am the author. If the H.R. 3809 approach to interim storage is followed, I do not think that such a formal and lengthy procedure is absolutely necessary, but a more limited provision could easily be drafted and would no doubt be welcomed by the States who are likely to provide such interim storage.

Second, I would advocate a definite and strict limitation on the duration of any interim storage program. In this regard, the Senate accepted my amendment to S. 1662 which requires that spent fuel be completely removed from a Federal AFR facility within 12 years from the date on which that facility begins operation and that the Federal Government must begin to remove this fuel within 8 years.

While I realize that H.R. 3809 contains a provision requiring that spent fuel be removed from a Federal interim storage facility as soon as practicable after a permanent repository is available, I believe that this provision could be improved by specifying the number of years such interim storage can be utilized without tying its use to the availability of a permanent repository. The 8- to 12-year period of my own amendment is a generous one and could justifiably be further tightened to perhaps 5 to 7 years.

Mr. Chairman, aside from Federal interim storage of spent fuel, there is one other issue on which I would like to comment. As senior member of the Senate Armed Services Committee, I urge the subcommittee to address in this legislation only the policies associated with safe disposal of civilian-generated waste. To combine military and civilian waste disposal programs at this point would complicate passage of this legislation and thus delay achievement of a permanent disposal solution for either type of waste.

I am not suggesting that defense waste should never be stored in a civilian waste repository. In fact, the language in title VIII of S. 1662 requiring a Presidential determination of whether this should be done seems to be a good approach to that issue. However, my present view is that the military and civilian waste programs should continue to move on separate tracks, in order to best insure that both programs proceed expeditiously.

In closing, Mr. Chairman, I would like to take this opportunity to emphasize my strong support for passage of a comprehensive nuclear waste bill this Congress, as evidenced by my vote in favor of final passage of S. 1662. The citizens of this country strongly support this legislation, and the utilities desperately need it. We have made tremendous progress this Congress, and I would urge the subcommittee to continue its work and to report a bill in a timely fashion.

Again, Mr. Chairman, I deeply appreciate your courtesy in allowing me to testify today.

Mr. OTTINGER. We thank you very much for your very fine testimony and for taking the time and trouble to be with us today. I know you have been much concerned about this issue.

Let me ask you some questions about the last matter, with respect to AFR's. I hope we will be able to work something out which will be reasonably satisfactory. I don't think that we can avoid including contingency plans for AFR's, but I do hope to be able to create a high hurdle and a high burden of proof to show that it is necessary to spur the utilities to seek other solutions.

However, I do not think any of us want to see very expensive plants sitting idle because they do not have adequate storage space. Should that occur, I think we need a contingency provision for that.

On the military waste, there is a strong disposition on our part that we will not have done our job by the public if we create, at huge expense, a repository which ignores better than 90 percent of the volume of fuel, which is represented by the military waste. And in talking with representatives of the Defense Department and the Armed Services Committee here, they seem to have no problem with the inclusion of military waste, provided we do not have to go into the processes by which the waste is produced.

That is to say, if we take the waste, military reservation gate door and put it in the repository, they have no problem with it with respect to the identification of any classified material. They can probably, in the course of classifying their wastes, put extraneous materials in it so that even if it were retrieved at some point it would not be valuable to a hostile force.

I wonder how strong the feeling of your Armed Services Committee is on this issue. If we provided the waste that comes out of the military processes, if it is taken at the gate of the military installation and put in a civilian repository, why does that cause grave problems?

Senator THURMOND. Well, it is our feeling that in order to expedite this legislation and prevent opposition to it, that the safer course might be to pursue both matters separately. Of course, they can be combined, that is another matter.

Mr. OTTINGER. I wonder if you could talk to your colleagues on the Armed Services Committee in this regard. I know it killed the bill last year. Senator Jackson felt very strongly about it. There seems to be a consensus now. The Department of Energy has testified, and we have heard from their testimony, that they see no reason whatsoever why military wastes should not be taken into this repository, provided that inquiries into how that waste was created and what its composition is, are waived.

If we could do that, I think we would have a lot easier time with the bill on this side. So if you could inform me with respect to how strong the feelings are in that respect, after consulting your colleagues, I think it would be very helpful.

Senator THURMOND. I would be glad to contact the members of the Armed Services Committee and get their feelings about this matter. We just want to be sure the job is done for both and is expedited.

Mr. OTTINGER. It seems enormously wasteful of precious taxpayer resources at this time to contemplate parallel procedures with very few places in the country available and have suitable geological formations in which you could bury waste to have to go through this kind of elaborate procedure and licensing twice, will be tremendously costly. And I think that is one thing which perhaps was not as urgent a problem when this bill was last considered as it is now, with the drastic slices in budget we are considering.

To duplicate that effort for military wastes seems wrong, and to tell the American public the waste problem is resolved without resolving the problem for 90 percent by volume—I understand it is not so by radioactivity, but still, it would require a completely duplicate procedure. If we could include it this year, there is a strong disposition to do so.

Mr. Markey has arrived, and I know you have a committee to chair, but the gentleman from Massachusetts has felt particularly strongly about this issue. So if you could get feedback to us and if it could be acceptable to work out something whereby there would be no inquiry back into the military processes and so that there would be no risk to national security involved and no interference with the jurisdiction of the Armed Services Committee, we could take this waste at the military reservation gate and put it in this repository, which we are already proceeding on.

We have been trying for 7 or 8 years to work this out and the procedure will take another 8 years to enable us to have confidence that we will have a repository. I think it would be a tremendous advantage.

Senator THURMOND. Mr. Chairman, I would be glad to contact the members promptly and get back in touch with you as soon as possible.

Mr. OTTINGER. Thank you very much.

Do any of my colleagues wish to question the Senator?

Mr. CORCORAN. Yes.

Mr. OTTINGER. The gentleman from Illinois, Mr. Corcoran.

Mr. CORCORAN. Thank you, Mr. Chairman.

Senator, I want to thank you for your testimony here this morning.

Second, let me talk on this question of commingling the process involving the militarily derived nuclear wastes and the commercially derived nuclear wastes. I do not often disagree with the chairman of the subcommittee with respect to procedural matters. But it is my understanding that the attitude of the Armed Services

Committee here in the House is somewhat different from his understanding of what that situation is.

I think from the vantage point of technology, from the standpoint of being able to, from a technical standpoint, store the military waste and the commercial waste in the same repository, that almost everyone, both who have responsibilities on the Armed Services Committee and on those committees here in the House with responsibility over nuclear waste that is commercially generated would agree that there is no major obstacle.

The problem is the politics, Senator. The problem is the procedure involved in getting to the point where we would ultimately have a permanent repository. And there are many people, I think, who feel that if we were at this late date in the process, with this being the only committee of the House that has yet to act on the question, to inject the problem—and it is a problem, as we saw in the waning days of the last Congress—of the inclusion of military nuclear wastes in the program, that it would be the deathknell for the program.

Now, in my judgment, I do not believe that this would be appropriate as a characterization of the subcommittee, but I do think there are some who would like to commingle the question in order to kill the bill. And I think that is quite unfortunate.

Second, Senator, I would like to get your views on the Senate disposition relative to the interim storage problem for the spent nuclear fuel. I am quite familiar with your work in the Senate relative to the AFR issue and I have some familiarity and concern about that, because Morris, Ill., is in my district, just as Barnwell, S.C., is of course within your constituency.

And it is my view that because of the unfortunate delay which has developed in the last 2 or 3 years particularly, that we ought to try to address the problem of the accumulated spent fuel. I recognize that a federally owned facility is a mistake and I agree with you totally in that respect. It is a mistake for many reasons which I will not labor on at the moment.

But at the same time, we have a problem. There are a number of utilities who, for instance, by 1992, and in some cases prior to that date, will be forced to shut down unless they have some sort of safety valve storage facility. So for quite some time, as a matter of fact since the very beginning of this Congress, there have been efforts under way to achieve a compromise on this, and the legislation that has emanated from the Interior and Insular Affairs Committee contains that compromise, and it provides a variety of ways to deal with the surplus when and if it occurs, and I suspect it will occur.

I wondered if you have had an opportunity to look at that particular AFR section of the Interior bill as it has come from the House committee, and whether or not you have any evaluation of that, whether or not you think that would satisfy the concerns of those who, from your standpoint unfortunately, were in the majority in rejecting your amendment.

Senator THURMOND. I will be glad to do so and get in touch with you.

Mr. CORCORAN. Thank you very much.

Mr. OTTINGER. I would like to advise my colleagues that the Senator does have to chair a meeting, and we have kept him, in part because of the vote. So if you could be brief, if anyone would like to be recognized, I would appreciate it.

The gentleman from Massachusetts.

Mr. MARKEY. I am an advocate of dealing with the defense question in addition to the civilian question simultaneously in this bill. I do want to make it clear, I am not now nor have I ever been a commingler.

I believe that we should work on this issue, because we do have at this point a momentum which is building to deal with the civilian waste problem that could be used to also deal with the defense waste problem, which is 90 percent of the problem by volume. And although we are able to reduce significantly the amount of radioactivity in that defense waste, it still poses a great deal of problem to the public health and safety if it ever does get into a water table, no matter what form it's in.

So what I'm wondering, Senator, is why—if defense wastes pose the same kind of problem, perhaps not the same degree but the same kind of problem that civilian waste does—do you believe it is advisable for us to do it all in one package? Because although it may, in the jurisdictions of the House and Senate, in the minds of the utility industry and the defense sector, it may seem like a different problem, in terms of the average citizens for whom we are trying to put together this program there is no distinction, because we are trying to prevent detrimental health and safety effects being inflicted upon them where they live.

Does it make any sense for us to go forward and do it comprehensively, because that 90 percent in volume which is defense wastes would probably never again have the same kind of focus on it it has today, and it perhaps would go unaddressed for another generation if we do not take this opportunity.

Senator THURMOND. Of course, if you can get a consensus now on both, that's one thing. But if you cannot, I think it's very important that this bill pass, and it seems to me we should not delay it. I think that if this bill is passed, it will set a pattern for the other bill.

Mr. MARKEY. My own belief is that it would put us in a situation in which we would not deal with the other problem.

Senator THURMOND. I do not think that. I think we must deal with it. It is a matter which I think is of paramount importance.

Mr. MARKEY. Should we take the bull by the horns and do them both now? Because the problems are the same, and the Congress is being pressed to put together a comprehensive waste bill. Should we exclude 90 percent of the problem?

Senator THURMOND. Well, can you get a consensus to include defense wastes?

Mr. MARKEY. If the leaders in the Congress say we will not get a consensus, we will not. But if they say, we are willing to take on the Armed Services Committee and the defense establishment and fight them so that we can take care of this national public policy issue, then we will be able to do it.

Senator **Thurmond**. Well, that is a matter you gentlemen would have to decide over here. You know the sentiment here better than I do.

Mr. **Markey**. Would you support that position?

Senator **Thurmond**. I am in favor of taking care of both, but I think it's safer to handle them separately.

Mr. **Markey**. Safer politically?

Senator **Thurmond**. To do both separately. But if you can get enough sentiment here—and I will test out the sentiment on the Armed Services Committee in the Senate and get in touch with the Chairman—well, that is a different matter.

Mr. **Markey**. Thank you, Mr. Chairman.

Mr. **Ottinger**. Contrary to some reports that appeared in the press, this issue is not resolved on the committee as yet. But I think there is a disposition that if we could get agreement in the Armed Services Committee and avoid the duplication, expense, and delay of getting rid of the military waste, there being now testimony from the Defense Establishment that there are no technical reasons not to do so, then perhaps we have the conditions whereby it would be acceptable at this time to at least a majority of members.

We would very much appreciate it if you would ascertain the views of your colleagues on the Armed Services Committee.

Senator **Thurmond**. I would be glad to do it and get in touch with you.

Mr. **Ottinger**. Thank you very much.

Senator **Thurmond**. Thank you very much, Mr. Chairman, for your hospitality and courtesy. And I thank the members.

Mr. **Ottinger**. We will hear next from our colleague, the Honorable Stan Lundine.

Mr. **Moorhead**. These are answers from the U.S. Nuclear Regulatory Commission to questions.

Mr. **Ottinger**. All right. They will be included in the record.

[The material referred to follows:]

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

OFFICE OF THE
CHAIRMAN

April 19, 1982

The Honorable Carlos J. Moorhead
Subcommittee on Energy Conservation and Power
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

Dear Congressman Moorhead:

Your letter of March 8, 1982 submitted a list of questions which you requested be answered for the record as part of the hearing held on March 3, 1982 on the subject of the NRC FY 83 budget request. Enclosed please find the responses to your questions.

Sincerely,

Nunzio J. Palladino

Nunzio J. Palladino
Chairman

Enclosure:
As stated

QUESTION 1. DOE projects that utilities will require off-site spent fuel storage capacity beginning in 1986 and growing to between 13,000 and 22,000 metric tons by the year 2000. What is your current assessment of the needs?

ANSWER.

The last NRC staff survey projecting spent fuel storage requirements in addition to reactor basin capacity to year 2000 was performed for the "Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel," (NUREG-0575), issued in August 1979. Estimates of this need in year 2000 for an installed reactor capacity of 230 GWe ranged from 19,000 metric tons heavy metal (MTHM) with full core reserve (FCR) maintained and intrautility transshipment to 28,000 MTHM with FCR and no transshipment. Since the issuance of NUREG-0575 there have been numerous cancellations of new reactors. However, the need for off-site storage capacity primarily occurs for older reactors and is relatively insensitive to such cancellations, except where multiple reactor units on a site are concerned. More important to the reduction in projected needs, as portrayed by the DOE estimates, has been the rise in achievable storage density in reactor basins because of the utilization of new rack designs containing neutron absorbing material such as Boron-10. These are termed poison rack designs. In examining the more recent DOE projections contained in "Spent Fuel Storage Requirements" (DOE/SR-0007), we find their estimates reasonable. Thus, the figures 13,000 to 22,000 metric tons in year 2000 for an installed reactor capacity of 180 GWe do not appear out of line. The lower bound of the range would correspond to the general assumptions of FCR maintenance and intrautility transshipment while the upper bound assumes FCR maintenance and no transshipment. The estimates are based on computerized calculations of reactor discharges and basin capacities as well as other factors specific to individual units. With respect to shorter term requirements, we also agree with DOE conclusions that the need for storage capacity outside of reactor basins will begin in the 1986 - 1987 time frame. It now appears that 15 - 20 reactor sites may require additional storage capacity by 1990 to maintain FCR.

We note that the question refers to this need for additional capacity as "off-site" storage. If such storage capacity is to be provided by the utilities, as contrasted to Federal government storage facilities, it appears likely that the additional storage capacity would be installed at the reactor sites, either in the form of additional pools or utilizing dry storage technologies, such as dry storage casks. The NRC regulations for such storage, 10 CFR Part 72, cover both wet and dry storage technologies, whether at reactor sites or at separate sites.

QUESTION 2. What impact will the recent New York Federal court case on DOT's hazardous materials regulations have on the transshipment of spent fuel?

ANSWER.

The impact of the recent decision in City of New York v. DOT, 81 Civ. 1778 (ADS) (S.D.N.Y., February 19, 1981) on the transshipment of spent fuel cannot be assessed until the court issues its final opinion and order. The court issued a draft opinion overturning in part the Department of Transportations' regulations governing highway routing of radioactive material shipments insofar as the regulations require state and local governments to permit truck transportation of spent fuel (and other large quantity shipments of radioactive materials) through densely populated areas. The court upheld the rule in all other respects. The court did not define "densely populated" nor did it provide guidance to be used to define the term. The court may clarify this point when it issues its final opinion and order. NRC will then, in conjunction with DOT, be able to accurately assess the impact of the decision on transshipments of spent fuel.

The court directed the parties to submit technical corrections to the opinion and to submit proposed final orders. These documents were submitted on March 22, 1982. The court's final opinion and order should follow soon.

The NRC has required approval of routes for spent fuel shipments for safeguards purposes since June, 1979. (See 10 CFR 73.37.) The NRC's safeguards rules also require special precautions in densely populated areas. NRC's approved routes are not affected by the court's decision because NRC has approved alternative routes where local jurisdictions prohibited shipments.

QUESTION 3. Do you support the streamlined licensing procedures for onsite spent fuel storage expansion contained in S.1662 as reported by Senate Energy and Environment Committee?

ANSWER

As Chairman Nunzio J. Palladino testified before the Senate Committee on Energy and Natural Resources and the Subcommittee on Nuclear Regulation of the Committee on the Environment and Public Works on October 6, 1981, a majority of the Commission does support the streamlined licensing procedures for onsite spent fuel storage expansion contained in S.1662, in Title III, "Interim Storage of Spent Fuel from Civilian Nuclear Power Plants." These procedures remain unchanged in S.1662 as reported by the Senate Energy and Environment Committee.

QUESTION 4. Under current licensing procedures, do you believe that the Commission can license a first-of-a-kind deep geologic waste repository in 2 years? 4 years? 8 years? Considering the uncertainties in the current licensing process, would you support permitting construction to begin on parts of the waste repository on an interim basis, as long as waste is not actually emplaced in the repository?

ANSWER.

NRC review of the Department of Energy's (DOE's) application for construction authorization (CA) will take on the order of four years -- two years for the staff to complete its safety review and National Environmental Policy Act (NEPA) environmental statement, and about two years to complete the hearing process if it goes smoothly. We have been working with several Congressional Committees to shorten this time by seeking legislation to enable the Commission to fulfill its NEPA responsibilities by concurring in the scope, outline, and alternatives to be considered in DOE's environmental impact statement on the selection of a repository site for a license application. If this legislation is enacted, we believe we would be able to reach a decision on construction authorization, which is the major step in the licensing process, in three-and-a-half years.

The Commission addressed the question of interim licensing authority in a letter to Congressman Hamilton Fish dated December 11, 1981. A majority of the Commissioners stated:

> "The Commission does not support interim licensing authority. First, this facility is too critical to waive the hearing. It is the first of its kind. Second, getting state, local, and general public acceptance is the hardest task for this facility. Interim licensing authority strongly undercuts building the needed acceptance.".

In a separate view in the same letter, Chairman Palladino and Commissioner Roberts stated:

> "We would not object to provisions ... to specifically grant the Commission interim licensing authority for the operation of a repository, to be exercised at the Commission's discretion. However, we do not believe the Commission should be directed to grant the license. ... We believe the repository licensing schedule ... should allow for a comprehensive review of the complete application and development of the complete record, prior to issuance of a license for this first of a kind repository. If the applicant can successfully make the argument that an interim license for the repository is in the National interest and does not affect health and safety, discretionary authority would allow NRC to grant the petition."[Commissioners' emphasis]

Mr. OTTINGER. Mr. Lundine, we are delighted to have you with us. We will put your full statement in the record, and you may proceed.

STATEMENT OF HON. STAN LUNDINE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. LUNDINE. Thank you. Mr. Chairman and members of the subcommittee, a few years ago, as you know, motivated by a rather parochial concern of having the only commercial reprocessing facility in the United States at West Valley, N.Y., I began to get a little interested in nuclear waste policy. I will not go into any detail of the West Valley legislation, but in the course of pursuing that it occurred to me that there was a polarization with respect to nuclear energy which was spilling over into an area of nuclear wastes—that we ought to be able to solve, and that really there is a compelling national need for a comprehensive nuclear waste management policy.

And just as we were able to even the poles, the industry and the environmental communities, to support that legislation, so too should we be able to develop a comprehensive approach to nuclear waste management that for once and for all gets the United States on the track of dealing with this, perhaps our most serious environmental problem.

I commend you for your longstanding interest. I know I have worked with you on the Science Committee in addressing this problem and I hope that this committee will be able to report out nuclear waste legislation.

I would like to make a few comments about my views on the various controversial aspects of this legislation, and I will try not to be redundant from testimony already received.

First of all, our foremost priority must be development of a permanent licensed repository, and I think we should always keep that in mind even in addressing some of these other issues. I introduced legislation calling for the development of a mission plan to carry out the goals and integrate the timetables in this process. I think that it is important that we acknowledge that we need, a definite mission plan to accomplish in developing this permanent repository—to isolate these wastes from the biosphere.

Second, I believe a consensus or conflict resolution mechanism must be available to the individual States in their disputes with the Federal Government over the selection of sites for permanent repositories. I do not favor a State veto, for the very simple reason that you will never get a repository. Likewise, I frankly think that those who advocate that both Houses of Congress and the President must overrule State vetoes are inviting a cumbersome process where you will never get a repository. And there is a constitutional problem with a single-house veto.

Therefore, only as an option I commend to your review a suggestion I put forward to have a mediation and arbitration board with representatives from the States, representatives from Congress, representatives from the industry, and the environmental community on it to make those decisions. I am not sure that my suggestion is perfect, but I think that it might be a mediation and arbitration capability which might allow us to solve the problems and still give the States their due recognition. And I am certainly not one who would want to abridge that right.

Third, with respect to defense nuclear wastes, I see no justifiable reason to treat them separately. As you already pointed out, technically there is no reason to do so. However, as you have just discussed with the distinguished Senator from South Carolina, there are political problems. I would offer this suggestion: Possibly including a provision which would exempt defense nuclear waste from this bill for a limited period of time, say 2 years.

Under such a provision, if the Armed Services Committees want to legislate separately, it gives them a period of time to do that, and if they want to integrate it into the same repository or take some other action they would have time to do that.

But it also recognizes in this legislation what the chairman has so cogently pointed out, that ultimately both defense and civilian waste should be dealt with and should be treated in a safe manner, consistent with the highest standards of protecting public health and safety.

Fourth, on the question of interim storage, I think that we must first recognize that to the extent that Federal support for interim storage is increased, progress on permanent disposal is likely to decrease. And so it seems to me that we should not have any interim storage unless it is necessary.

Personally, I urge you to outright reject the idea of monitored retrievable storage, and I will not say any more about that unless you are interested. The utilities have the capacity.

I really do not think, either, that there is a need for an AFR. I think that the utilities have the capacity to deal with their interim spent fuel storage problem and that there is no need to mandate in this legislation the development of federally mandated away-from-reactor storage facilities.

The issue of interim storage is principally that of determining who will have the management responsibility for the storage of utilities' spent fuel. The technology for storing spent fuel is well known. The safety record of the utilities is excellent. And I would point out, new dry storage technologies have been developed and promise to make significant contributions to the utility capability to meet interim storage needs.

The necessary regulations for licensing these technologies have been put into place by the NRC. I would like to also point out that TVA and Florida Power & Light are conducting a licensed demonstration of dry-cask storage at their reactor site. So I really believe that dry storage offers a more economical solution to this problem, that it does not require transportation to and away from reactor sites.

I would point out to the subcommittee that in the entire experience we have had in this area, the estimated time when reactors will begin to experience shortfall in their own storage capacity has constantly been pushed back. So I urge you not to rush forward with AFR's that may or may not be necessary with this new technology.

However, I understand that some maintain that we should have a last resort, an insurance policy, if you will, as a sort of standby in the event that it is needed so that the Federal Government will not force a reactor to shut down because of a lack of spent fuel storage capacity. I agree with that. No one wants a reactor, I do not think, to shut down for that reason, or, I do not think it is reasonable to ask that it be shut down for that reason.

Therefore, in terms of this insurance policy, I would suggest three criteria that should be attached to any AFR authorization, and I would insist that we try to get the maximum agreement between the industry, the environmentalists, and come to an informal understanding that we are going to stick to this position in the conference with the Senate, given the fact that, as the Senator from South Carolina has testified, it was a very close vote over there.

The three criteria I would suggest are:

First, that it be limited to 1,700 metric tons, as approved by the House Interior Committee;

Second, that it be subject to a finding by the Nuclear Regulatory Commission that all other options have been exhausted for utility storage;

Third, that it be limited to existing civilian research facilities that are owned by the Federal Government on the date of the enactment of this act. That means, I think, that we are very carefully defining that an AFR is only a standby, but that we are assuring the industry no reactor will in fact be shut down for those reasons.

And I think under those circumstances the emergency nature of any shutdown threat could be properly dealt with.

Finally, with respect to interim storage, I think we should streamline the licensing process for interim storage of spent fuel. And it seems to me the procedures adopted by the Interior Committee in H.R. 3089 streamline this approach and strike a balance.

[Testimony resumes on p. 388.]

[The prepared statement of Mr. Lundine follows:]

Statement of Congressman Stan Lundine
Before Subcommittee on Energy, Conservation and Power
House Energy and Commerce Committee
June 10, 1982

Motivated by the desire to resolve a serious nuclear waste management problem in my Congressional district at West Valley, New York, six years ago I set out as a member of this legislative body in search of a comprehensive national policy on nuclear waste management as a framework for resolving my parochial concerns. What I found instead was confusion in our federal agencies and in the Congress, and apprehension at the state and local level regarding the direction of our national effort. There was a great deal of controversy regarding what the appropriate direction of a national program might be, and a lack of commitment on the part of all government officials to make the tough choices needed in order to launch an effective national program.

Since that time, Congress in its infinite wisdom provided me support in my quest to launch an effort to help deal with my parochial problem of the disposition of 600,000 gallons of high level liquid nuclear waste at West Valley. This was a significant step forward in our commitment to a broader solution to all of our nuclear waste problem. While as Congress directed, work has begun at West Valley, the solidification of these nuclear wastes will be preceding in a dangerous policy vacuum unless we can also put in place a national commitment, and define a policy, for implementation of a comprehensive and permanent disposal system for our nuclear wastes.

The high level liquid wastes which we will solidify at West Valley and from the defense program, and the commercial spent fuel currently being stored at sites around the country must find their way into a permanent repository that will isolate them from the biosphere for their hazardous lifetime. Until we have accomplished this goal, as a nation we cannot claim to have solved our nuclear waste problem.

As such, it is important that Congress enact a comprehensive nuclear waste policy without further delay. I commend the Chairman of this subcommittee for his leadership and action on this issue not only as Chairman of this subcommittee, but also as a member of the Science and Technology Committee where I have had the privilege to work with him.

If our national effort is to be credible to the American people, and if it is to be fair to all interests so as not to require anyone to bear an uneoual share of this burden, there must be a consensus on several points.

First, our foremost priority must be the development of a permanent licensed repository system for the disposal of solidified commercial and defense wastes and spent nuclear fuel. Accordingly, everything possible must be done to insure that our national resources are not sidetracked and applied to the development of interim storage options as a substitute for permanent disposal. We must also proceed with the implementation of a sound technical plan and institutional strategy for the development of a repository system licensed by the Nuclear Regulatory Commission that has continuity over the years.

To address this point, I included in legislation I intorduced earlier this Congress, H.R. 1993, a call for the development of a mission plan to carry out the goals and integrate the timetables of this bill. Such a plan would make sure that we do not experience substantial delays in the program because of poor program planning, or lack of continuity in program planning efforts across changes in political Administrations. A modified version of this concept was adopted by the Science and Technology Committee during their deliberations on their bill, and I would commend this to your consideration as well.

Second, a consensus must be developed with respect to the conflict resolution mechanisms available to the individual states in their disputes with the federal government over selection of sites for permanent repositories. I have not been an advocate for an absolute state veto of repository siting decisions because I believe that in reality adoption of such a procedure would make it virtually impossible to obtain approval for location of a repository. I can understand the rationale behind those who advocate an appeal to Congress to sustain, or overrule, state objections as the ultimate dispute resolution mechanism. However, recent court decisions indicate that such a procedure would have to involve adoption of a resolution by both Houses of Congress and then approval by the President in order to pass the test of constitutionality. Because under this process, both commencement of the review process through recommendation of a site as a potential repository, and the final judgement in a Congressional state appeal process would rest with the President, this seems to me to be a cumbersome, and ultimately unworkable approach to conflict resolution. We have backed ourselves into an undesireable corner with respect to a Congressional review mechanism whereby we will either be forced to adopt an unworkable mechanism on the one hand, or a likely unconstitutional one on the other. Each of these options has inherent in them likely extensive delays in development of a national repository system, which I would maintain should be avoided.

As an option to Congressional review of sites as a dispute resolution mechanism, I would urge you to examine the mechanism I have advocated in H.R. 1993 for the creation of an independent Mediation and Arbitration Board as a vehicle to resolve state-federal conflicts. This board would be provided substantial powers to insure that the states are given by the Department of Energy adequate information to make informed judgements. This board would also determine if state objections that might ultimately cause concern for the siting of a repository in a particular location are based on justifiable technical or economic factors. Through its mediation and arbitration powers the board would be able to search for acceptable ways to address state concerns. And, the board would retain certain powers and authority to direct the Department of Energy to take certain actions to address state concerns before the Department of Energy could proceed with a construction license application to the Nuclear Regulatory Commission.

Third, consensus must be reached on whether or not to mandate that the policies in this legislation pertain equally to commercial and defense nuclear wastes. Personally, I have long maintained that there is absolutely no justifiable reason to separate treatment of defense and civilian nuclear wastes. However, I think we must also realize that the dispoute over this issue has the potential for stopping progress on this bill dead in its tracks in the Congress. Therefore, in the interests of accomodating those who advocate the separate tereatment of defense wastes, but also in the interests of insuring that in acting on this legislation Congress is not negligent in addressing the serious problem of defense waste management, I believe this committee should explore with the Armed Services Committee the possibility of including a provision which would exempt defense nuclear wastes from this bill only for a period of time-- say two years. During this time Congress would review the reasons why it might not be wise for defense wastes to be treated the same as civilian wastes. If at the end of that period of time Congress has not acted to establish a national policy to deal with defense nuclear wastes, then the provisions of this bill would apply equally to defense wastes. Such a provision should not be objected to by those in the defense community who seek additional time to consider adoption of a separate national policy for defense wastes. At the same time, it should reasure those who feel strongly that this issue must be addressed in a timely manner.

Fourth, this committee must reach a consensus on the issue of interim storage of spent fuel. At the outset, I think we must recognize that to the extent that federal support for interim storage is increased, the progress on permanent disposal is likely to decrease. I come to you particularly concerned about the emphasis in recent months on authorization of so-called monitored retrievable storage facilities (m.r.s.) and federal away from reactor storage facilities (a.f.r.'s).

I urge you to outright reject inclusion of any authority in this bill to proceed with the development of monitored retrieveable storage facilities. I am convinced that this is nothing more than a centralized away from reactor dry storage facility. This concept is ill-defined and will ultimately draw financial resources from the permanent disposal solution. Recently, during hearings before the Science and Technology Committee, I asked D.O.E. officials what they understood an m.r.s. system to be. They commented that there currently was no conceptual design of what such a system might look like or precisely what its purpose in terms of an overall comprehensive national system might be.

I also come before you to indicate my firm conviction that the utilities have the capacity to deal with their interim spent fuel storage problem and that there is no need for inclusion of a mandate in this legislation for the development of federally managed away from reactor storage facilities.

The issue of interim spent fuel storage is principally that of determining who is going to have the long term management responsibility for the storage of utility spent fuel. The technology for storing spent fuel is well known and the safety record of utilities in this regard is good. Utilization of new dry storage technologies have been developed and promise to make a significant contribution to utility capability of meeting interim storage needs. The necessary regulations for licensing these technologies are in place at the N.R.C. With the assistance of D.O.E., in Fiscal Year 1983, the Tennesee Valley Authority and Florida Power and Light will conduct a licensed demonstration of cask storage at their reactor sites. Once these facilities have been licensed, the regulatory fear should be largely removed and the path will be paved for widespread use of these technologies. In addition to utilization of dry storage technologies, rod consolidation has the potential for doubling the amount of spent fuel that could be stored per square foot of pool area at some reactors.

Dry storage technologies also offer a more economical option than centralized storage facilities. A recent study by D.O.E. estimated a considerable cost-savings between utilization of dry storage and wet pool storage ($345/kqU for water pool storage compared to $117/kqU for cask dry storage). In addition, dry storage casks are being produced in the United States, so that availability is no problem. Finally, because dry storage offers us a feasible way of dealing with interim storage problems at the site of nuclear power plants, transportation of spent fuel in interstate commerce will be minimized, a goal which we all can agree is desireable.

In short, the case for a federal role in interim storage of utility spent fuel is based on a claim that reactors will begin to experience shortfalls in their storage capacity in the next decade. I think there is good cause for skepticism of this claim. D.O.E. figures estimating utility storage shortfalls have continually been revised downward since 1977. The very earliest such storage capacity might be needed is now 1987 which gives utilities ample time to develop use of on-site storage options.

I believe the federal government should continue a strong research and development and demonstration role in interim storage options for spent fuel. I successfully authored an amendment to the Science and Technology Committee bill to see that a strong and aggressive r & d program is continued in this regard to make sure that data is available for private sector licensing of these technologies. Beyond this, on the merits, I do not believe a federal rolein interim storage can be justified.

Nonetheless,some maintain that this legislation should include a "last resort", an insurance policy if you will, for utilities to in effect insure that the federal government will not force reactor shutdown because of lack of spent fuel storage capacity. I think all of us would agree that we would not want to see a reactor shut down for lack of spent fuel storage space.

If this committee is favorably disposed to providing such an insurance policy, I suggest that if it is truly to be last resort it should be governed by the following absolute limitations for the purposes of debate in the House and in conference with the Senate;

1. The federal government should be limited in the total amount of metric tons of spent fuel it can take from utilities. I see no reason for increasing the limit beyond the 1700 metric tons approved by the House Interior Committee.
2. Federal storage of utility spent fuel should only occur subject to a finding by the Nuclear Regulatory Commission that all other options have been exhausted by that utility for storage. These would include transshipment, on-site expansion through new technologies or facilities construction, compaction, or re-racking.
3. Federal storage should be limited to existing federally-owned civilian research facilities on the date of enactment of the Act so as not to provide any justification for federal purchase or lease of new facilities for this purpose or use of defense facilities to become involved in the storage or utilization of civilian spent fuel for the defense program. Assistance through the D.O.E. r & d program or otherwise for development of new technologeis at reactor sites would also be appropriate, as would storage of spent fuel at the potential sites of a repository since, ultimately, a holding facility for spent fuel will have to be constructed at repository sites.

Adoption of these limitations would insure that this insurance would not be used, except in emergencies.

Finally, with respect to interim storage, I urge this committee to adopt procedures to streamline the licensing process for interim storage of spent fuel. It would seem to me that the procedures adopted by the Interior Committee in H.R. 3809 to streamline this process approach an appropriate balance between those who would advocate more extensive review of licensing of facility expansions and changes for at reactor storage,and those who seek granting of interim licensing by the N.R.C. for this purpose.

I shall reserve detailed comment on other provisions of this debate except to mention that I have been an advocate for establishment of a utility trust fund to provide full financing for this program and believe strongly that the states should be provided compensation for impacts from repository development and storage as an integral part of this program.

In summary, most fundamentally, we need a national policy that will enable us to move forward in a timely way to develop a system for permanent disposal of our nuclear wastes. Ultimately, such a system must make provision for both commercial and defense wastes. Our national policy must incorporate an effective dispute-resolution mechanism to resolve conflicts between the individual states and the federal government over the siting of disposal facilities. Finally, a direct and significant role for the federal government in the management of spent fuel in the short term cannot be justified. Rather, the task of storing spent fuel until it can be disposed of in a repository should appropriately remain a private sector responsibility.

Mr. Ottinger. Do you mean for expanding existing on-site? You said interim storage.

Mr. Lundine. Well, that is interim storage.

Mr. Ottinger. I see. Well, the two get confused. Interim is usually referred to as AFR.

Mr. Lundine. I just wanted to make one other point. I have long been an advocate for the establishment of the utility trust fund and to provide full financing for this program.

In summary, Mr. Chairman and members of the subcommittee, I thank you for the opportunity to testify. We really need a national policy to develop a system for the permanent disposal of our nuclear wastes, and ultimately I think such a system should make provisions for both commercial and defense wastes. We need to incorporate an effective dispute resolution mechanism to resolve conflicts between States and the Federal Government over the siting of disposal facilities, and we need to assess carefully any role for the Federal Government in the management of spent fuel in the short term. It can only be justified in the limited circumstances and under the criteria I have mentioned.

I think with these thoughts in mind we can proceed, and I believe we can get a bill this year. I commend you for your leadership in that regard.

Mr. Ottinger. I want to thank my colleague. I put him on this committee, but he serves with me on the Science and Technology Committee, where we have also been dealing with aspects of this problem.

I think you have offered some very creative ideas, which I hope we can explore. I think the idea of not treating military wastes for 2 years or some period of time, to give the Armed Services Committees a chance to act separately if they want to, is a very creative suggestion and one which is well worthwhile exploring.

My preference would be to get the Armed Services Committee to agree to handle it in this bill.

Mr. Lundine. Well, I agree.

Mr. Ottinger. Because there is no reason for it not to be.

The dispute resolution mechanism you suggest is of particular interest. We have been struggling about what to do about the possibility that a State could hold up the process for getting an eventual permanent repository by failing to enter into the agreement provided for in the various bills. What do you do if the State just refuses to agree, or what do you do if the Department of Energy just refuses to agree? And to have some kind of dispute resolution in that respect as well, is a very interesting idea and one which we would hope to pursue.

On the AFR, your suggestions are those which I put forward, which I hope we can get agreement on on the committee and I hope we can get industry's agreement. And the department has already indicated that it looks favorably upon that. So I hope we can come out with something of that nature.

Thank you very much.

Are there any questions?

Mr. Walgren. Yes, Mr. Chairman.

Mr. Ottinger. Mr. Wyden.

Mr. **Wyden**. I would like to compliment our colleague for an outstanding statement with a lot of practical suggestions. Congressman Swift and I have been advocating the idea of creating an independent review body that would, in effect, monitor DOE with respect to site selection and site characterization.

What we are interested in is a jury of sorts which would set out the criteria which DOE would use in characterizing sites and also in terms of the approval or disapproval process. In effect, they would be submitting a set of final sites for Presidential selection.

What we want to assure is that DOE looks beyond those sites and those States which have become familiar in this country's nuclear history. And I wanted to hear your reaction to that. Is that moving in the same direction of your mediation board, an independent process for monitoring DOE? Are we talking about the same kind of thing?

Mr. **Lundine**. I think they are consistent. I believe the States should have an involvement in the mediation board. I propose 11 members: Four from the Congress, three from the industry, environmentalists and scientists, and four from the States.

I believe that, as in a lot of areas where you have inherent conflicts, if you get people involved in the development of the consensus, you are a lot more likely to find an eventual resolution of the problem than if their only attempt to participate can be by protest.

And I would hope that the States that were selected to participate would be some of those with a direct interest in the matter. I see no problem with extending that to monitoring the earlier aspects and activities of the Department of Energy. I would hope you would not build a lot of delay into it, though.

Mr. **Wyden**. That is obviously our concern, too. But we want to make sure there is some fairness built into this process as well. I think the concern of many of us in Oregon is we feel Hanford has already been selected, and we want to make sure we look beyond these areas and these States which are familiar in this country's nuclear history.

Mr. **Lundine**. I doubt if you could find anyone more sympathetic than I to not simply assume that because an area has had nuclear activities in the past it should therefore have them in the future.

Mr. **Wyden**. I thank my colleague.

Mr. **Corcoran**. Mr. Chairman.

Mr. **Ottinger**. The gentleman from Illinois.

Mr. **Corcoran**. I want to take this occasion to compliment our friend from New York for his statement. I think he has made some useful suggestions which we will want to explore.

I must also say that he, like myself, started his evaluation of this matter, as he indicated, by a very provincial interest. And I hope when the history of this legislation is written that all of us who started on that basis can become like he, a national statesmen on the issue.

Mr. **Lundine**. Thank you very much. I certainly agree it is ironic. I understand the gentleman from Illinois may lose Morris as a part of his district, and I may lose West Valley. But hopefully, before we do, we will solve the overall problem. Thank you.

Mr. **Ottinger**. I thank the gentleman very much.

We will hear next from Governor List, and then we will hear from an industry panel.

Governor, it is good to have you with us. There is a vote which has been called in the House. Unfortunately, we will have to delay you a little bit further and recess before we hear your testimony. Then we will hear from an industry panel.

And I would like to apologize again, as I did the other day, to the industry witnesses. Particularly, I think, Mr. Smith may have come to Washington anticipating to testify on Tuesday and we were unable to take him because of time constraints.

That will be followed by a panel of environmental representatives and then TVA and the oceans and environment program of the Office of Technology Assessment. We have a full pallet before us.

We are at this point, I would like to say, in our deliberations still exploring with the minority those areas in which we can get agreement on this legislation. That has been delayed, and that has been my fault. There has been a delay in getting language that I thought represented a cross section of the views of the majority. So we are presently contemplating markup to start next Wednesday rather than Tuesday.

It is not my intention to delay these matters. We will get agreement on that on which we can get agreement, and that on which we cannot we will present to the committee. It is my hope and expectation that we will report a bill out of this committee before the 4th of July recess.

So we will recess at this point, vote, and come back as soon as we can.

[Brief recess.]

Mr. OTTINGER. We will next hear from the Honorable Robert List, Governor of the State of Nevada, who, of course, has an interest in this as a potential repository State.

Governor, I am sorry we had to delay your appearance. We are glad to have you before us today. We will put your full statement in the record, without objection. You may proceed.

STATEMENT OF HON. ROBERT LIST, GOVERNOR, STATE OF NEVADA, ACCOMPANIED BY HOLMES BROWN, STAFF MEMBER, NATIONAL GOVERNORS' ASSOCIATION

Governor LIST. Thank you very much, Mr. Chairman and members of the committee. I am very pleased to be here and have this opportunity to express my views to you as Governor of Nevada and also a member of the Subcommittee on Nuclear Power of the National Governors Association. I appear today to present my views and also the policies adopted of long standing, in most instances, of the National Governors Association.

The issue of nuclear waste is of critical importance to me and the residents of my State and also my fellow Governors. It is a problem which has grown in scope and magnitude since America and the world entered the nuclear era nearly 40 years ago now. As our reliance on nuclear power grows, we are certainly faced increasingly with a public demand to resolve the waste issue. We have unfortunately reaped the benefits of the atom without adopting a comprehensive policy for addressing the disposal of its wastes.

The magnitude of those wastes is now of extreme concern; 75 million gallons of highly radioactive material are stored in temporary tanks at Federal facilities. The over 70 licensed commercial reactors in the country have produced another 600,000 gallons of highly radioactive wastes and over 8,000 metric tons of spent nuclear fuel. That spent fuel is now distributed throughout the Nation in water-filled holding tanks.

As we are all aware, the public is becoming more and more apprehensive about the effects and disposition of those wastes. Certainly, the attendance at this hearing reflects that. Those public misgivings and the lack of a clear policy in the area will continue to cloud the discussion of the future of nuclear power until we have congressional action on the issue.

I was particularly pleased to hear you say, Mr. Chairman, that you intend to proceed with markup next week. The Governors, through the National Governors Association, have long supported a comprehensive national waste management policy and program.

Your subcommittee has devoted considerable time and effort to formulating and promoting the passage of nuclear waste legislation. The adoption last session of the National Low Level Radioactive Waste Policy Act, which incorporates many of the recommendations of the NGA's low level waste task force and also the State planning council on radioactive waste management, appointed by former President Carter, on which I served as a member, is very gratifying.

States have subsequently taken an active role in implementing the provisions of that act. Recent initiatives regarding both high- and low-level radioactive waste disposal demonstrate the commitment and capabilty of the Governors and of the States to continue to assist in the resolution of these issues.

While we have been concerned about many diverse aspects of the waste problem, our primary focus has been to insure that the States and the public play a key role in the decisionmaking process to guarantee the protection of the health and safety of our citizens and the environment of our Nation. For Governors, the most critical aspect of the legislation is the form and extent of the States' participation.

Let me assure you that the States' insistence on a substantial role in the siting and development of a repository is in no way intended to slow or jeopardize the disposal of high-level radioactive waste. The Governors Association worked very diligently last session for the passage of a nuclear waste bill. We remain committed to that end and are actively promoting adoption of a waste bill by this Congress.

Both those States which are potential hosts and those which generate high-level waste support the expeditious passage of comprehensive waste management legislation. Failure to do so increases public doubts and may later lead to the hurried passage of inadequate legislation with an exclusively Federal orientation.

Experience demonstrates that State and Federal cooperation yields the best political and technical solution. We intend to continue to foster that cooperation in nuclear waste management.

I would now like to turn to the specific elements of legislation under consideration here. First, my comments will address the matter of State participation. The National Governors Association has long maintained that States must play a primary role in decisions affecting the nuclear waste facilities. We have used the terms "consultation" and "concurrence" and "cooperative federalism" to describe how that should happen.

Our position is based on the principle that federalism makes the States equal partners in pursuing the national interest. It is never in the national interest for citizens of a State to mistrust and fear an action by their own National Government. Thus, a process must be established in which Federal policies are subject to review and modification in order to achieve public understanding and public acceptance.

As Governor of Nevada and a believer in the sovereignty of States, I support the right of a State to veto a Federal project altogether. Congress, however, is not inclined to endorse such a provision, and we recognize that.

As an alternative, the National Governors Association supports a policy of extensive participation in siting and construction decisions and a congressional review mechanism if a State objects to the final Department of Energy facility proposal.

All of the legislation adopted by Congress over the past 4 years has acknowledged that a State-Federal partnership is necessary by including consultation and concurrence provisions. The Governors have reviewed this issue for several years and consider the following elements essential to any consultation and concurrence process:

First, early notification and complete access to information. States have encountered difficulty in acquiring complete information on a timely basis, especially from some DOE subcontractors. The Department of Energy should be encouraged to make available to the States all relevant documents with adequate time for review and comment.

Second, we think there should be signed agreements. States want the option of concluding signed, binding agreements with the Department of Energy covering the rights and responsibilities of each party. The negotiation of timetables, scopes of work, impact assistance, and conflict resolution by proceeding on a project will eliminate, we think, many of the misunderstandings which have marred State-DOE relations in the past.

Mr. **Ottinger**. Governor, let me break in on you at that juncture because this is one of the points at which we have some puzzlement about just what to do. We are concerned, on the one hand, that the States may not get a fair deal because the Department of Energy has no compulsion to agree to anything, or on the other hand that the States, having political reservations about taking a site within their borders, refuse to agree.

And I wonder whether you would look kindly on some kind of enforcement mechanism or whether you have anything you could suggest to us and what you might think of Mr. Lundine's suggestion that there be some kind of arbitration panel set up consisting of representatives of all interested parties.

Governor **List**. We would prefer a process whereby should the Department of Energy fix a site in the State which objects to its location there, that the Department of Energy would then have the burden of persuading two Houses of the Congress to concur with their site selection.

The provisions of the Udall bill that, as I understand it, are intact in that measure coincide with our approach. The State planning council——

Mr. OTTINGER. The agreement actually comes well before you make the final decision. There are two questions here. One is on the final decision as to where you locate the site, should the State have a veto, and what kind of a veto should it have.

There is another question as to how you reach resolution on an agreement which includes very substantial payments to the States for the impacts that might be caused in the States to cover the planning expenses, monitoring expenses, and agreement, and to assure that you have the kind of full access that you I think deserve and would want.

And there is no mechanism for enforcement. It says there will be an agreement. But what if the parties do not agree?

The second question is if the parties do agree and someone does not do what he is supposed to do, either the State or the DOE, what happens then? Should there be a right to sue?

Governor LIST. I suppose a mechanism of a panel in that instance, an arbitration panel, might be applicable. We would not want to see that on the final site selection issue. But as to the agreement, the resolution of differences in that fashion might be acceptable.

I think the final fact that Congress would retain the ultimate determination on the override question would provide a sufficient amount of leverage so that in most instances the State and DOE would find it in their best interest to reach an agreement.

I think it would give both the States and the DOE a recognition of the reality that if the site selection goes forward after the agreement is signed and it ultimately comes to pass that that State is chosen, that the knowledge that the final determination would rest with the Congress itself would be sufficient to force the parties at the agreement stage to reconcile their differences.

Mr. OTTINGER. I am somewhat concerned because a State which has strong popular pressure against having a repository in the State might well delay things considerably, and the DOE has not had a good track record of keeping States fully informed and following them in their deliberations, as was brought out in the hearings we had on Tuesday.

So I am really concerned on both sides that there be some mechanism overseeing this. And if you have any other ideas, we would welcome them.

I wonder if we could take the rest of your statement and put it in the record. We have some 25 witnesses. If you want to make a few points to which you feel particularly strong about, you may. But your full statement will appear in the record.

Governor LIST. Let me attempt to highlight it then.

We feel very strongly that the burden of securing the support in the Congress in the event of a State objection to a site location, that that burden ought to be on DOE rather than upon the State.

Conversely, to put the burden on the State we think is putting an impossible task on States such as Nevada, where we have just three Members of Congress and where we would find it virtually impossible to take on the lobbying effort and the enormous burden that would be present. And we feel that it is not an unreasonable request or suggestion to put the burden on DOE.

I would also like to respond to a comment in Tuesday's testimony by Secretary of Energy Edwards, who stated no government really wanted the responsibility for vetoing or objecting to a site. I think from my part, and I speak for an overwhelming number of Governors who come from those potential host States, that is simply not the case. We welcome that responsibility and find it consistent with our duties as Governors to protect the health and welfare of our people.

Let me also say that we would hope that the timetable that is being talked about, that that ought to be a part of the bill that is intact, and a reasonable period of time allowed under that timetable for the site selection.

We expect to see a rigorous chronology that would follow. But certainly, we think that there ought to be a technically conservative period of time in which to review the various options that are going to be under consideration.

And we are concerned that an accelerated time frame might compel the Department of Energy to select just those States where they perhaps have already done some activity or where they have already geological information that they would, in effect, shortcut the look that ought to be taken at the rest of the potential States.

We also feel very strongly that the provision of the bill which would burden the States with a share of the cost of monitoring during the study period is improper. We think the Federal Government ought to bear that full cost. At the present time, of course, the Government is bearing that cost; for example, in New Mexico some half a million dollars.

But as we understand your draft, it would impose a burden on the States to come up with about 25 percent. And to ask a State to play host potentially to a site and then to be openminded about it and then to ask them to dig into their own pockets to begin to study their geology, to see about the possibility of it is, we think, not only inequitable but would be politically a negative way to go into a State.

[Testimony resumes on p. 405.]

[The prepared statement of Governor List follows:]

TESTIMONY OF ROBERT LIST

GOVERNOR OF NEVADA

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE

AS GOVERNOR OF NEVADA AND A MEMBER OF THE SUBCOMMITTEE ON NUCLEAR POWER OF THE NATIONAL GOVERNORS' ASSOCIATION, I VERY MUCH APPRECIATE THE OPPORTUNITY TO TESTIFY BEFORE THE SUBCOMMITTEE ON ENERGY CONSERVATION AND POWER OF THE COMMITTEE ON ENERGY AND COMMERCE. I WILL BE PRESENTING A STATEMENT ON BEHALF OF THE NATIONAL GOVERNORS' ASSOCIATION WITH ADDITIONAL OBSERVATIONS DRAWN FROM NEVADA'S EXPERIENCE WITH NUCLEAR WASTE ISSUES.

THE ISSUE OF NUCLEAR WASTE IS OF CRITICAL IMPORTANCE TO ME, THE RESIDENTS OF MY STATE AND MY FELLOW GOVERNORS. IT IS A PROBLEM THAT HAS GROWN IN SCOPE AND MAGNITUDE SINCE AMERICA AND THE WORLD ENTERED THE NUCLEAR ERA NEARLY 40 YEARS AGO. AS OUR RELIANCE ON NUCLEAR POWER GROWS, WE ARE INCREASINGLY FACED WITH A PUBLIC DEMAND TO RESOLVE THE WASTE ISSUE. WE HAVE UNFORTUNATELY REAPED THE BENEFITS OF THE ATOM WITHOUT ADOPTING A COMPREHENSIVE POLICY FOR ADDRESSING THE DISPOSAL OF ITS WASTES.

THE MAGNITUDE OF THOSE WASTES IS NOW OF EXTREME CONCERN. SEVENTY-FIVE MILLION GALLONS OF HIGHLY RADIOACTIVE MATERIAL ARE STORED IN TEMPORARY TANKS AT FEDERAL FACILITIES. THE OVER-70 LICENSED COMMERCIAL REACTORS IN THE COUNTRY HAVE PRODUCED ANOTHER 600,000 GALLONS OF HIGHLY RADIOACTIVE WASTES AND OVER 8,000 METRIC TONS OF SPENT REACTOR FUEL. THAT SPENT FUEL IS NOW DISTRIBUTED THROUGHOUT THE NATION IN WATER-FILLED HOLDING TANKS. AS WE ARE ALL AWARE, THE PUBLIC IS BECOMING MORE AND MORE APPREHENSIVE ABOUT THE EFFECTS AND DISPOSITION OF THOSE WASTES. THOSE PUBLIC MISGIVINGS AND THE LACK OF A CLEAR POLICY IN THE AREA WILL CONTINUE TO CLOUD THE DISCUSSION OF THE FUTURE OF NUCLEAR POWER UNTIL WE HAVE CONGRESSIONAL ACTION ON THE ISSUE.

The Governors, through the National Governors' Association, have long supported a comprehensive national waste management policy and program. The Subcommittee, has devoted considerable time and effort to formulating and promoting the passage of nuclear waste legislation. The adoption last session of the National Low-Level Radioactive Waste Policy Act, which incorporates many of the recommendations of NGA's Low-Level Waste Task Force and the State Planning Council on Radioactive Waste Management -- of which I was also a member -- was gratifying. States have subsequently taken an active role in implementing the provisions of the Act. Recent initiatives regarding both high-and low-level radioactive waste demonstrate the commitment and capability of the Governors to continue to assist in the resolution of these issues. While we have been concerned about many diverse aspects of the waste problem, our primary focus has been to ensure that the states and the public play a key role in the decision making process to guarantee the protection of the health and safety of citizens and the environment of our nation. For Governors, the most critical aspect of the legislation is the form and extent of the states' participation.

Let me assure you that the states' insistence on a substantial role in the siting and development of a repository is in no way intended to slow or jeopardize the disposal of high-level radioactive waste. The Governors' Association worked diligently last session

FOR THE PASSAGE OF A NUCLEAR WASTE BILL. WE REMAIN COMMITTED TO THAT END AND ARE ACTIVELY PROMOTING ADOPTION OF A WASTE BILL BY THIS CONGRESS. BOTH THOSE STATES WHICH ARE POTENTIAL HOSTS AND THOSE WHICH GENERATE HIGH-LEVEL WASTE SUPPORT THE EXPEDITIOUS PASSAGE OF A COMPREHENSIVE WASTE MANAGEMENT PROGRAM. FAILURE TO DO SO ONLY INCREASES PUBLIC DOUBTS AND MAY LATER LEAD TO THE HURRIED PASSAGE OF INADEQUATE LEGISLATION WITH AN EXCLUSIVELY FEDERAL ORIENTATION. EXPERIENCE DEMONSTRATES THAT STATE/FEDERAL COOPERATION YIELDS THE BEST POLITICAL AND TECHNICAL SOLUTION. WE INTEND TO CONTINUE TO FOSTER THAT COOPERATION IN NUCLEAR WASTE MANAGEMENT. I WOULD NOW LIKE TO TURN TO SPECIFIC ELEMENTS OF THE LEGISLATION UNDER CONSIDERATION.

STATE PARTICIPATION

THE NATIONAL GOVERNORS' ASSOCIATION HAS LONG MAINTAINED THAT THE STATES MUST PLAY A PRIMARY ROLE IN DECISIONS AFFECTING NUCLEAR WASTE FACILITIES. WE HAVE USED THE TERMS "CONSULTATION AND CONCURRENCE" AND "COOPERATIVE FEDERALISM" TO DESCRIBE HOW THAT SHOULD HAPPEN. OUR POSITION IS BASED ON THE PRINCIPLE THAT FEDERALISM MAKES THE STATES EQUAL PARTNERS IN PURSUING THE NATIONAL INTEREST. IT IS NEVER IN THE NATIONAL INTEREST FOR CITIZENS OF A STATE TO MISTRUST AND FEAR AN ACTION BY THE NATIONAL GOVERNMENT. THUS, A PROCESS MUST BE ESTABLISHED IN WHICH FEDERAL POLICIES ARE SUBJECT TO REVIEW AND MODIFICATION IN ORDER TO ACHIEVE PUBLIC UNDERSTANDING AND ACCEPTANCE.

AS GOVERNOR OF NEVADA AND A BELIEVER IN THE SOVEREIGNTY OF STATES, I SUPPORT THE RIGHT OF A STATE TO VETO A FEDERAL PROJECT ALTOGETHER. CONGRESS, HOWEVER, IS NOT INCLINED TO ENDORSE SUCH A PROVISION. AS AN ALTERNATIVE, THE NATIONAL GOVERNORS' ASSOCIATION SUPPORTS A POLICY OF EXTENSIVE PARTICIPATION IN SITING AND CONSTRUCTION DECISIONS AND A CONGRESSIONAL REVIEW MECHANISM IF A STATE OBJECTS TO THE FINAL DEPARTMENT OF ENERGY FACILITY PROPOSAL.

ALL OF THE LEGISLATION ADOPTED BY CONGRESS OVER THE PAST FOUR YEARS HAS ACKNOWLEDGED THAT A STATE/FEDERAL PARTNERSHIP IS NECESSARY BY INCLUDING CONSULTATION AND CONCURRENCE PROVISIONS. THE GOVERNORS HAVE REVIEWED THIS ISSUE FOR SEVERAL YEARS AND CONSIDER THE FOLLOWING ELEMENTS ESSENTIAL TO ANY CONSULTATION AND CONCURRENCE PROCESS:

- EARLY NOTIFICATION AND COMPLETE ACCESS TO INFORMATION. STATES HAVE ENCOUNTERED DIFFICULTY IN ACQUIRING COMPLETE INFORMATION ON A TIMELY BASIS, ESPECIALLY FROM SOME DOE SUBCONTRACTORS. THE DEPARTMENT OF ENERGY SHOULD BE ENCOURAGED TO MAKE AVAILABLE TO STATES ALL RELEVANT DOCUMENTS WITH ADEQUATE TIME FOR REVIEW AND COMMENT.
- SIGNED AGREEMENTS. STATES WANT THE OPTION OF CONCLUDING SIGNED, BINDING AGREEMENTS WITH THE DEPARTMENT OF ENERGY COVERING THE RIGHTS AND RESPONSIBILITIES OF EACH PARTY. THE NEGOTIATION OF TIMETABLES, SCOPES OF WORK, IMPACT ASSISTANCE AND CONFLICT RESOLUTION BEFORE PROCEEDING ON A PROJECT WILL ELIMINATE MANY OF THE MISUNDERSTANDINGS WHICH HAVE MARRED STATE/DOE RELATIONS IN THE PAST.

o Two-house override. The Governors and the State Planning Council have recommended a procedure where both Houses of Congress are required to support the Department of Energy's plan rather than one house voting with the state. The states feel that the burden of securing support in Congress should be on DOE rather than on the State and that if the Department has designed and implemented its program correctly, Congressional assent in both houses is not an unreasonable requirement. Conversely, to put the burden on the state is unreasonable and unfair. For example, Nevada with its three-member Congressional delegation would face the immense, and, I believe, almost impossible task of gaining the concurrence of one House of Congress and opposing the U.S. Department of Energy. Arrayed against the State of Nevada - whose staff resources are limited by its small population and the ownership of a vast portion of its land by the federal government -- would be the Department of Energy, the Administration and other interests seeking a repository. We simply lack the wherewithal to mount a commensurate lobbying effort in Congress.

At this time, I would like to respond to a comment on the state appeal which appeared in Tuesday's testimony by Secretary of Energy James Edwards. The Secretary states that no governor really wants the responsibility for vetoing or objecting to a site. For my part - and I speak for an overwhelming majority of potential "host" governors - I welcome such a responsibility and find it totally consistent both with my duty under the state constitution to protect the Nevada public health and welfare and with the philosophy of new federalism.

CHRONOLOGY

NGA POLICY STATES THAT THE ULTIMATE DISPOSAL OF HIGH-LEVEL WASTE MUST HAVE THE HIGHEST PRIORITY AND THAT THE SOLUTION MUST NOT BE DELAYED, BUT ACCOMPLISHED THROUGH UTILIZING AVAILABLE AND WORKABLE TECHNOLOGIES. THUS, THE NATIONAL GOVERNORS' ASSOCIATION STRONGLY SUPPORTS THE ADOPTION OF A FIXED, REASONABLE TIMETABLE LEADING TO THE OPERATION OF A PERMANENT REPOSITORY. LET THE GOVERNORS ADD, HOWEVER, A WORD OF CAUTION. WE KNOW FROM EXPERIENCE THAT ANY DECISION INVOLVING RADIOACTIVITY AROUSES INTENSE INTEREST, IF NOT CONTROVERSY. WHILE A RIGOROUS CHRONOLOGY IS ADVISABLE, THE GOVERNORS INSIST THAT A TECHNICALLY CONSERVATIVE PROGRAM IS ESSENTIAL FOR ULTIMATE SUCCESS. THOROUGH INVESTIGATIONS OF EACH CANDIDATE SITE SHOULD BE CARRIED OUT, SINCE FAILURES AT OTHER NUCLEAR WASTE FACILITIES, BOTH HIGH AND LOW LEVEL, HAVE CREATED AN UNFORTUNATE LEGACY OF PUBLIC MISTRUST. NEVADA'S EXPERIENCE WITH THE FEDERAL GOVERNMENT'S MISLEADING ASSURANCES ABOUT THE ATMOSPHERIC WEAPONS TESTING PROGRAM AND THE RECENT VIOLATION OF TRANSPORT AND PACKAGING REGULATIONS AT THE BEATTY LOW LEVEL WASTE DISPOSAL FACILITY ARE BUT TWO OF THE EPISODES WHICH HAVE BURDENED MY STATE. ANOTHER FAILURE CAN ONLY COMPLICATE THE TASK WHICH A HIGH LEVEL WASTE BILL SEEKS TO REMEDY.

AN ACCELERATED TIME FRAME MAY COMPEL THE DEPARTMENT TO SELECT ONLY THOSE STATES WHICH HAVE RECEIVED EXTENSIVE STUDY, ALTHOUGH THEY MAY NOT BE THE MOST PROMISING SITES ON A NATIONAL SCALE. STATES RECOMMEND A CONSERVATIVE, CAUTIOUS TIME TABLE ALLOWING ADEQUATE TIME TO REVIEW DOE DOCUMENTS AND DECISIONS.

COMPENSATION FOR STATES

THE DISPOSAL OF HIGH LEVEL NUCLEAR WASTE HAS BEEN AN ACKNOWLEDGED FEDERAL RESPONSIBILITY SINCE THE BEGINNING OF THE NUCLEAR ERA. STATES HAVE BEEN EXPLICITLY PREEMPTED FROM MANY ASPECTS OF NUCLEAR REGULATION AND RESPONSIBILITY BY THE ATOMIC ENERGY ACT OF 1954. WE HAVE NOT QUARRELED WITH THE FEDERAL GOVERNMENT'S PRIMACY IN PROVIDING FOR HIGH LEVEL WASTE DISPOSAL, BUT FEEL THAT SINCE WASTE MANAGEMENT IS A NATIONAL PROBLEM,THE ENTIRE COSTS OF DISPOSAL SHOULD BE BORNE BY THE BENEFICIARIES OF NUCLEAR POWER.

NGA AGREES WITH THE INCLUSION OF PROVISIONS WHICH RECOGNIZE THE FEDERAL RESPONSIBILITY TO ASSIST STATES THROUGHOUT THE DEVELOPMENT OF A REPOSITORY. CONSULTATION AND CONCURRENCE PROVISIONS SUCH AS INDEPENDENT MONITORING, PUBLIC EDUCATION AND INVESTIGATIONS, SHOULD BE COVERED FROM THE BEGINNING OF SITE CHARACTERIZATION THROUGH CONSTRUCTION AND OPERATION. IN DEFINING FEDERAL ASSISTANCE, THE GOVERNORS' ASSOCIATION ALSO ENDORSES IMPACT ASSISTANCE TO OFFSET OR AMELIORATE POTENTIAL SOCIAL AND ECONOMIC IMPACTS OF THE STATE AND COMMUNITY.

IMPACT ASSISTANCE SHOULD ALSO COVER WHATEVER REVENUE LOSSES A COMMUNITY MAY INCUR AS THE RESULT OF LAND OR RESOURCES AFFECTED BY THE FACILITY.

LET ME EMPHASIZE THAT STATES OR LOCALITIES SHOULD NOT BE REQUIRED TO PAY EVEN A PERCENTAGE OF IMPACT ASSISTANCE COSTS. TO ASK A STATE, WHICH IS ALONE BEARING THE BURDEN OF ACCEPTING NATIONAL WASTE, TO ADDITIONALLY SUBSIDIZE THE PROGRAM THROUGH A PERCENTAGE PAYMENT IS BOTH UNJUST AND COUNTERPRODUCTIVE. AS THE GOVERNOR OF A STATE WHICH HAS CONTRIBUTED MORE THAN ITS FAIR SHARE TO THE NATIONAL PROGRAMS FOR WEAPONS TESTING AND LOW LEVEL WASTE DISPOSAL, I CAN ASSURE YOU THAT THE REQUIREMENT FOR A STATE CONTRIBUTION WILL COMPLICATE EFFORTS TO ENLIST STATE COOPERATION IN SITING AND CONSTRUCTING A HIGH LEVEL WASTE FACILITY.

DEFENSE WASTE

THE GOVERNORS STRONGLY ENDORSE THE SIGNIFICANT STATE ROLE REGARDING THE DISPOSAL OF MILITARY WASTE. HIGH LEVEL DEFENSE WASTE CREATES THE SAME POLITICAL AND ENVIRONMENTAL PROBLEMS AS CIVILIAN WASTE. WHILE MINDFUL THAT NATIONAL SECURITY MATTERS MUST BE ATTENDED TO, THE GOVERNORS ARE CONVINCED THAT STATES SHOULD BE PROVIDED THE SAME PARTICIPATION RIGHTS WHETHER A SITE CONTAINS DEFENSE OR COMMERCIAL WASTE. THROUGH CONGRESS AND THE COURTS, THE STATES AND THE PUBLIC CURRENTLY AFFECT DECISIONS ABOUT DEFENSE FACILITIES. EXEMPTION OF DEFENSE WASTE FROM THE PROVISIONS IN THIS LEGISLATION ON THE STATE ROLE WILL NOT MAKE A FUTURE DEFENSE FACILITY IMMUNE FROM PUBLIC PRESSURE. NGA IS PERSUADED THAT INCLUSION OF A STATE ROLE AT THIS TIME WILL, IN FACT, ACCELERATE THE DISPOSAL OF DEFENSE WASTES BY PROVIDING A FRAMEWORK IN WHICH TO RESOLVE STATE OBJECTIONS. WE STRONGLY URGE THE SUBCOMMITTEE TO ADDRESS THE ISSUE OF DEFENSE WASTE.

SENATE AMENDMENT

TOWARDS THE END OF SENATE DEBATE ON S. 1662, AN AMENDMENT WAS ADOPTED BY VOICE VOTE WHICH ASSERTS THAT PASSAGE OF THE HIGH LEVEL WASTE ACT ITSELF WILL SATISFY STATE LAWS WHICH REQIRE A DEMONSTRATION THAT A TECHNOLOGY FOR WASTE DISPOSAL EXISTS AND THAT IT WILL BE AVAILABLE WHEN NEEDED. SEVEN STATES HAVE SUCH LAWS, OVER 20 STATES HAVE FILED AMICUS BRIEFS IN A CASE ARISING OVER SUCH A STATE LAW. STATES ARE EXTREMELY CONCERNED ABOUT THE PRECEDENT ESTABLISHED BY THIS AMENDMENT - ONE WHICH COULD BE EXTENDED TO MANY OTHER AREAS OF STATE AUTHORITY. WE URGE THE HOUSE OF REPRESENTATIVES TO OPPOSE ANY ATTEMPT TO PASS A SIMILAR AMENDMENT.

NEPA APPLICATION

NGA POLICY CALLS FOR THE FULL APPLICATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT TO MAJOR FEDERAL ACTIONS. ONE OF THE LEGITIMATE TESTS OF THE NECESSITY OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) IS THE EXTENT OF THE IMPACT OF ACTIVITIES ON THE IMMEDIATE ENVIRONMENT. UNDER PRESENT LAW, AN EIS IS REQUIRED WHERE A MAJOR FEDERAL ACTION RESULTS IN A SIGNIFICANT IMPACT TO THE ENVIRONMENT OR WHERE AVAILABLE ALTERNATIVE COURSES OF ACTION ARE ELIMINATED. YET THE EXEMPTIONS CONTAINED IN THE COMMERCE COMMITTEE DRAFTS FOR ACTIVITIES CONDUCTED DURING SITE CHARACTERIZATION WOULD PRECLUDE AN EIS EVEN WHERE SUBSTANTIAL ENVIRONMENTAL IMPACT OR THE ELIMINATION OF ALTERNATIVES IS INVOLVED. WHEN ADDRESSING AN ISSUE HAVING SUCH LONG-RANGE CONSEQUENCES AS NUCLEAR WASTE, THE NEPA PROCESS SHOULD NOT BE CIRCUMSCRIBED. THE COMMERCE COMMITTEE SHOULD MODIFY THE NEPA PROVISIONS OF THE HIGH LEVEL WASTE BILL TO REQUIRE AN EIS WHEN MAJOR FEDERAL ACTION OCCUR.

Test and Evaluation Facility

Although outside the jurisdiction of this Committee, I wish to reiterate recommendations which the Governors have made regarding a test and evaluation (T/E) facility. States are concerned that a T/E facility could be a backdoor method of selecting a site while avoiding the licensing and state participation provisions which apply to development of a full-scale repository. Consequently, we endorse full NRC licensing, NEPA application and state review for a T/E facility.

Conclusion

The National Governors' Association welcomes this opportunity to comment on proposed high level waste legislation. The states worked diligently last session to secure passage of such a bill and are confident that this 97th Congress will enact a comprehensive waste management plan. The NGA has adopted extensive policy recommendations on waste legislation over the years. We have endorsed a decisive state role.

In December of 1980, Congress adopted the Low-Level Radioactive Waste Policy Act which reflected many of the recommendations of the states as represented by the NGA, the State Planning Council and the National Conference of State Legislatures. I am happy to report that all regions of the country are actively engaged in carrying out the mandate of the low level waste legislation.

This year's high level waste bill contains many of the provisions long advocated by the Governors. We are gratified by the access to and cooperation with Congress we have experienced thus far. The Governors are convinced that by working together with the legislative and executive branches, we can devise a waste management program which satisfactorily balances the interests of all parties and protects the public health and safety which is our paramount goal.

Mr. **Ottinger**. One thing I might clarify is that we do not have a draft, even though it has been represented that we do. There have been a number of documents forwarded by both sides making suggestions, but there is no draft.

Governor **List**. Well, some of the suggestions at least would impose responsibility on the State financially to share in the study and monitoring costs. And we think we are talking about a national problem, and to impose that burden on a State does not make sense. And from the standpoint of public acceptance of the project, it certainly would get off on the wrong foot.

We also think that in defining the Federal assistance, that it ought to be very clear that impact assistance to offset or ameliorate potential social and economic impacts in the State and community ought to be clear. Impact assistance ought to cover whatever revenue losses a community might incur as a result of land or resources affected by the facility as well. In essence, we are talking about impact mitigation and feel that it should be clearly and carefully provided for.

On the subject of defense waste, we endorse the same kind of State role for defense wastes as we do for nondefense or commercial wastes. We see virtually the same political and environmental problems with military waste as we do with civilian waste.

Mr. **Ottinger**. Do you take a position on whether this bill ought to provide for inclusion of military waste? It seems the States are at hazard twice. If there have to be two procedures and two repositories, one for civilian and one for military wastes. If they have to go through this whole drawnout procedure and getting your citizens all concerned and incurring the expense twice if they were treated separately.

Governor **List**. We do not think they should necessarily be separate. We think, though, that there ought to be a consistent parallel process whether it is civilian or military. And if you combined them, that is fine, too.

Mr. **Ottinger**. The Governors are not taking the position with respect to getting this over in one procedure or having two.

Governor **List**. Not as an association. Personally, I think it should be done in one fell swoop.

Mr. **Ottinger**. Is there a mechanism whereby the Governors could come to a conclusion on that issue quickly?

Governor **List**. Let me introduce Holmes Brown, a member of our National Governors Association staff. And I will ask him to address that.

Mr. **Brown**. I am afraid the Governors have not devised mechanisms that operate much more rapidly than Congress.

Mr. **Ottinger**. That is a tragedy.

Mr. **Brown**. We are able to adopt policy at plenary sessions every 6 months, and our next meeting will be in August. We may well address this issue at that time. We have biannual meetings.

Mr. **Ottinger**. Is there an executive board that can make interim decisions?

Mr. **Brown**. There is an executive board. It would not make a decision which would have to be adopted by the plenary session.

Mr. **Corcoran**. Mr. Chairman, may I be recognized on that point?

Mr. OTTINGER. Yes.

Mr. CORCORAN. Governor, if I understand your answer to the question posed by the chairman, you have said that you think the legislation ought to apply to military waste repositories. What would be your thought about the legislation mandating the commingling in the same repositories the military and commercial wastes?

Governor LIST. I have no problem with that at all. I understand that there are political concerns within the Congress about the fact that that might stall the legislation, and that would be a shame if that were permitted to occur. If that could be resolved, my attitude would be that they ought to be treated and handled and commingled.

[Mr. Corcoran nods affirmatively.]

Governor LIST. May I proceed, Mr. Chairman?

Mr. OTTINGER. Yes, yes.

Governor LIST. Toward the end of the debate on the Senate bill 1662 there was an amendment adopted which asserted that the passage of the High Level Waste Act itself would satisfy State laws which require a demonstration that a technology for waste disposal exists and that it would be available when needed.

There are seven States who have laws of that kind, and there is currently a lawsuit pending which challenges and tests the constitutionality and viability of such statutes. Over 20 States have filed amicus briefs in that litigation, and we would hope that such a provision would not ultimately be in the statute.

We think that to just arbitrarily cast aside State statutes with a provision of that kind is wrong, and we urge the House to oppose any attempt to pass a similar amendment as an integral part of any bill you produce.

Let me touch also, if I may, on the question on NEPA, the National Environmental Policy Act. Our NGA policy calls for full application of NEPA to major Federal actions, and certainly under that act one of the legitimate tests of the necessity of an EIS is the impact on activities on the immediate environment that might be affected.

Under present law an EIS is required where major Federal action results in a significant impact on the environment. And yet the exemptions contained in the Commerce Committee drafts for activities conducted during site characterization would preclude an EIS even where substantial environmental impact or the elimination of alternatives is involved.

We think that is wrong. When addressing an issue with long-range consequences such as nuclear wastes, the NEPA process ought not be circumscribed. In fact, it should be rigorously applied. And we would hope that you would not grant that kind of exemption.

Mr. OTTINGER. There is full EIS provided for before a site is selected. And the question that we are dealing with here is with site characterization: what kind of environmental consequences such as would require a full-blown EIS?

Members of the committee are concerned about duplicating environmental statements and delaying the whole procedure and having to go through that process and the possible court review on EIS at multiple junctures in this process.

What we have been tentatively talking about is having an environmental assessment at the juncture of characterization. And I have suggested that I think we ought to say something about what that environmental assessment includes and require the department to address itself to specific environmental problems raised at that point and examine alternatives and to express its reasons for not pressing the environmental problems that have been raised and will not be addressed.

I wonder if you can tell us whether that is adequate, whether you feel that an EIS is really necessary at the characterization stage with its possible attendant delays, and what kind of problems actually you anticipate in the process of that characterization which could cause real problems for States such as your own?

Governor **List**. I will ask Mr. Brown to elaborate on our reasoning.

Mr. **Brown**. The question of the environmental impact statement has been raised in particular by the State of Utah which is currently undergoing initial site characterization work. They have a very remote location which is under investigation in a delicate ecological location.

The initial site characterization work is having a significant environmental impact on that area, and Utah is concerned the exemptions contained in the Senate bill and those which have been included in some versions of House bills would mean that this environmental impact would occur without a thorough investigation. States have not found in the past that environmental assessments are adequate, and they are hoping for some protections to be provided in the bill.

Mr. **Ottinger**. What kind of environmental problems are actually attendant? What kind of activity is going on that caused them concern?

Mr. **Brown**. As I mentioned, the site is located in a remote area and requires several hundred miles of off-road trails to be constructed to get the required equipment in. In addition, DOE will be bringing in power lines as well.

The experience in Utah is that when you initiate off-road trails it sometimes requires 40 or 50 years for the area to recover, if you can keep other off-road vehicles from the trail. That has not been their past experience. This is the type of problem they encounter. It may be unique to the State of Utah. There are locations in other States which are more populous areas adjacent to paved highways.

But States are concerned that a situation such as this may arise, and they will not have adequate protection from the impact.

Governor **List**. You can literally still see the tracks of the wagon trains that crossed my State over 100 years ago. They haven't healed over.

Let me turn, if I may now, to the subject of test and evaluation facilities. Although outside the jurisdiction of this committee, I want to briefly mention it and reiterate the recommendations we made in that regard.

We are concerned that a test and evaluation facility could become a back door method to selecting a site which avoids the licensing and the State participation provisions which apply to the development of a full-scale repository; and we therefore endorse full NRC licensing, NEPA application and State review for test and evaluation facilities as well.

In conclusion, let me simply state that we very much appreciate the courtesy shown our association and our staff, and we welcome this opportunity to elaborate on our proposed ideas for inclusion in the legislation.

We worked very diligently in the last session of the legislature to secure passage of the bill, and we are very confident that this session of Congress will enact the kind of comprehensive plan we have been driving for and that this Nation so desperately needs.

Mr. OTTINGER. Thank you for your testimony.

Are there any questions?

Mr. RITTER. May I?

Mr. WYDEN. Yes, Mr. Chairman.

Mr. OTTINGER. The gentleman from Oregon.

Mr. WYDEN. Thank you, Mr. Chairman.

I did not hear all of your statement, Governor. I just have a couple of questions.

Do you feel the timetables in this package of bills we are looking at, as well as the fact that DOE is doing the picking and choosing in a sense, does that really bias site selections in favor of sites the DOE has real familiarity with?

Governor LIST. We are concerned about that. We have not proposed a specific timetable, but obviously the shorter the timetable is, the more convenient it becomes to simply move into those areas where you have already begun the work.

Mr. WYDEN. Do you think the timetables in the bills we are looking at are too short? What I'm interested in is are you concerned about the bias? Are you concerned we are just looking at areas with which we are familiar?

Governor LIST. We are concerned about that.

Mr. WYDEN. We've heard from a number of States and obviously your own of a past record of frustration and really exasperation dealing with the Department of Energy and their contractors. Do you think this will change with enactment of a comprehensive waste bill?

Do you expect a material difference from the past level of frustration you have talked about?

Governor LIST. I suspect it will always be a frustrating process. We are dealing with a highly volatile issue, both scientifically and politically; so I suspect it will never be easy, and the process will always be somewhat frustrating. But there is no way to do it but just roll up our sleeves and go at it.

Mr. WYDEN. Do you think the bills then, to put it the same way as I did the bias question, do you think that package of bills we are looking at is something that will make life easier for the States, or would you find it easier to work with the DOE on the basis of that package, the direction it takes?

Governor LIST. I think so. I think it gives us a predictable course to follow. And I would also say this. Our experience in Nevada with the Department of Energy at the Nevada test site has been a relatively good one. General Gates, who runs that site, is a very forthright and candid individual, and I would not want my comments during my testimony about my frustration with the Department of Energy subcontractors to reflect directly on the DOE.

Our problem has been more with them—and I think that experience has been the same in other States—than it has been with DOE itself.

Mr. WYDEN. The last question I want to ask deals with a proposal Congressman Swift and I advanced, the idea of an independent site selection and characterization review body. I share your feeling that you want very much to require DOE to prove to Congress that site selection is a good one, that DOE has to carry that kind of burden of proof. Assuming that we preserve that concept, what would be your reaction to this idea of an independent site selection review process?

Governor LIST. I prefer the final solution to be at the congressional level, the final site selection. I think there ought to be that kind of accountability. To delegate it to a committee in my judgment would be a mistake when you are dealing with a matter of major public policy and consequences.

Mr. WYDEN. I do not think anyone is talking about delegating anything to a committee. I think what we are talking about is a jury of sorts in effect trying to set out criteria that DOE would use in selecting the sites, and in making a recommendation to the President. We are trying to insure fairness and that we look beyond just these areas with which we are familiar. I do not think we are talking about delegating anything to a committee. We are talking about a process we think will make for a great deal more accountability rather than less, and that we will broaden the number of sites we look at.

Governor LIST. Well, the NGA itself has no particular formal position on that issue, and I simply cannot give an official reaction to it.

Mr. WYDEN. Let me ask you one last question. Do you think we should be monitoring DOE to insure fairness in this process? Do you think there should be some way to do something beyond what DOE is doing to insure that we look at the broadest number of sites, or do you think we should just let DOE do it?

Governor LIST. I think that if there is that ultimate provision built into the bill which requires that they might very well find themselves back before congress to carry the burden of proof to justify a selection they have made, that there will be sufficient leverage on them from day one to do a thorough job. And of course there is continuing Congressional responsibility to monitor any agency or any department. But that additional leverage that would be on them to ultimately have to come back and sit at this table or some table in this city and justify their decisions in my opinion would cause them to do a much better job. There is no other way that is even comparable to compel them to do the job that they ought to do.

Mr. WYDEN. Thank you.

Mr. OTTINGER. The time of the gentleman has expired.

I will recognize other members who feel compelled, but I would like to point out and ask that you take pity on the some 20 witnesses who remain and the Chair who has no alternative.

Mr. Ritter.

Mr. **Ritter**. Well, I do take pity on all of those witnesses, especially those who were called back from last Tuesday. And I thank the chairman for holding these hearings. I think they are very important.

Governor, you did comment in your testimony on the amendment which asserts that passage of the High Level Waste Act itself will satisfy State laws which require a demonstration that a technology for waste disposal exists and that it will be available when needed. Seven States presently have such laws, and over 20 States have filed amicus briefs in a case arising over such a State law. That is from your testimony.

You talk about the precedent established, and I would like to explore with you whether or not you have some suggestions for somehow moderating or mitigating the impact of that precedent-setting quality which you refer to, and yet still come up with a mechanism based upon the following facts.

The fact is that the technology is not an unproven technology. It has been done. It has been done many times in many different ways. As a matter of fact, far less secure waste disposal technology of this kind or similar to it has been functioning in France for the last 3 years.

What suggestions would you have for taking this feature and making it less precedent-setting yet still satisfying the State laws? After all, you are talking about a year close to 2000 when this is functional. You will have a lot of powerplants that will need to come online and that will bump right into this State versus Federal area of conflict.

Governor **List**. Of course the issue is pending in the U.S. Supreme Court and should be resolved long before we ever reach the stage where the principle would be applicable if it were to be included in this bill.

Mr. **Ritter**. But I guess I am asking rather to look for a middle road or an efficient way out of this catch-22.

Governor **List**. Let me ask Mr. Brown if in his research on this he has come across any suggestions that might be helpful.

Mr. **Brown**. Our objection, and that of the National Association of Attorneys General, is that this particular amendment sets a very dangerous precedent in the balance between Federal law and State law. There may be a catch-22 involved here, but that seems to be inevitable in the constitutional delegation of powers.

In this particular point, as the Governor has mentioned, the issue should be resolved well before you encounter a conflict. The need for disposal capacity will occur after its availability has been demonstrated.

Our feeling is that the courts are the proper forum in which to resolve this issue, and that Congress should not intervene and say that State requirements are satisfied simply by the passage of congressional legislation.

Do you see this as being a problem in other areas or just in the nuclear area?

Mr. **Ritter**. Well, I think you and the States have seen it as being a problem in other areas, and I would like to avoid the uncertainty of the courts and try to come to a reasonable way of doing this legislatively.

I think it is possible that other language could be developed which allows this. The Feds presently, as you know, have preemption power over nuclear power safety under the Atomic Energy Act, so there is some legal precedent for even this amendment. But if it throws further uncertainty into an already uncertain situation, we should try to work that out prior to leaving it up to the courts.

Governor LIST. I suppose there is always the possibility that you are going to get an arbitrary rejection from a technological standpoint or a political standpoint.

Mr. RITTER. I think the political standpoint would probably hold sway over the technological one at this point given what we do know and the experience we have.

Mr. OTTINGER. The time of the gentleman has expired.

I would suggest that if the gentleman from Pennsylvania wants to try to work something out with the States by way of an amendment in this regard, we would be glad to take a look at it.

Governor, thank you very much for being with us.

Mr. MARKEY. Mr. Chairman, I just have one quick question, please.

Mr. OTTINGER. I am sorry.

Mr. MARKEY. Could you expand for a moment your view on the inclusion of defense waste in this legislation?

Governor LIST. Essentially it is this. There ought to be a process for military waste which is essentially the same as the process for civilian waste, but we do not have—we would not draw any distinctions from the standpoint of the State participation and public participation and the right to be heard and for thorough and careful review and analysis between military and civilian waste.

Mr. MARKEY. So you believe it ought to be included in this legislation?

Governor LIST. Yes, we do.

Mr. MARKEY. Thank you.

Mr. OTTINGER. Thank you very much, Governor. We appreciate your being with us.

We will hear next from the industry panel: Sherwood H. Smith, Jr., president and chairman of the Carolina Power & Light Co.; J. Phillip Baynes, senior vice president, Nuclear Generation Power Authority of the State of New York; and Dr. Seymour Raffety, Dairyland Power Cooperative, LaCrosse, Wis.

Gentlemen, we are glad to have you with us. And again, let me express my apologies for the confusion that surrounded your appearance last Tuesday.

In keeping with the practice from the committee we will take your full statements for the record and proceed with questions.

The thing which puzzles me most from the point of view of the industry, as I understand it, you have the power now to expand away from reactor storage, to join together various utilities in establishing common sites away from reactor storage, and yet the utilities appear deliberately not to have done that, to have waited for the Federal Government to come in and dissolve their problem with some kind of federally provided reactor storage. Why should we save you from your own neglect?

STATEMENTS OF SHERWOOD H. SMITH, JR., PRESIDENT, CAROLINA POWER & LIGHT CO., ACCOMPANIED BY RON LEESBURY, VICE PRESIDENT, VIRGINIA ELECTRIC & POWER CO.; THOMAS R. FREY, SENIOR VICE PRESIDENT, POWER AUTHORITY, STATE OF NEW YORK; AND SEYMOUR RAFFETY, REACTOR ENGINEER, DAIRYLAND POWER COOPERATIVE

Mr. SMITH. Mr. Chairman, thank you for asking the question that I think goes to the heart of one of the important questions in this legislation.

I am Sherwood Smith, president of Carolina Power & Light Co., appearing here for my own company, the American Nuclear Energy Council, the Edison Electric Institute, and the Utility Nuclear Waste Management Group. And if I may, I will respond to your first question, please.

Mr. Chairman, I anticipated that this question would be asked. Contrary to what has been said, I believe an examination of the record would show that the utilities in the United States have done a great deal and are continuing to do a great deal to solve their own away-from-reactor or spent fuel storage problems.

Our company is simply typical of what many utilities in the United States have done. We have a unit, the Robinson nuclear unit, located near Hartsville, S.C. It is a 700-megawatt unit. In came into service in April 1971. It is one of the first in the United States. For a long while that summer it was the largest in service.

Before we brought that unit in service we did everything we could to provide for the disposition of spent fuel. We were the first company to enter into a contract with the Allied nuclear fuel reprocessing facility then to be built at Barnwell. As is well known, because of changing Federal policies, licensing problems, and others, that contract could not be consummated because Barnwell has not been completed. The unit went into operation. The pool became full in 1975. What could we do? We added spent fuel racks to increase the onsite storage capability. The pool was full again in 1978. What did we do? We shipped, being the first company, I believe, to do so, spent fuel from a plant in South Carolina to another plant in North Carolina, our Brunswick plant. We had to reduce the power operation of the plant in South Carolina. We purchased a shipping cask. We were the first company in the country to do that, the first licensed. We shipped by rail over a hundred tons of spent fuel from South Carolina to North Carolina to use in the facility of another plant there. Incidentally, that second pool is now full.

We continued to ship in the 1979–80 period spent fuel from our plant in South Carolina to our plant in North Carolina, all the time coming here to urge this Congress to act on legislation such as is before Congress now.

In 1980, realizing there was no place to continue to store spent fuel from the Robinson plant in South Carolina, we applied to the NRC for a license to expand again our spent fuel storage capability there, in spite of the fact we had already gone through that licensing procedure once, and 18 months have gone by and we still have not received permission from NRC to expand that capability.

[A chronology follows:]

ROBINSON NUCLEAR UNIT, HARTSVILLE, S.C.—SPENT FUEL

(Source: Carolina Power & Light Co.)

1970.—AGNS reprocessing contract.

1971.—Robinson PWR unit began commercial operation.

1975.—Pool full; Added racks.

1977/78.—Pool full; Reduced power operation; Purchased shipping cask; Reracked BWR pools at Brunswick plant, Southport, N.C.; Shipped fuel to Brunswick plant.

1979/80.—Continued spent fuel shipments to Brunswick plant.

1982.—Install maximum storage capacity (high density racks) at Robinson plant.

1986.—Lose full core discharge capability at Robinson plant; Need additional off-site storage.

Mr. SMITH. We hope that license amendment will be granted soon. We have every reason to believe it should be.

I am pleased to see the answer of the majority of the Commission which indicates that the Commission favors expedited review of these requests to amend the license so that the utilities can continue to do what is encompassed in the question, to the maximum extent possible handle their own spent fuel storage capability. But today—and it is not next year or 5 years from now—we no longer have a full discharge capability at the Robinson unit. It is being refueled and modified now. When it comes back in service this summer we will not have full core discharge capability. Even if we get the amended license of the NRC it will take us some time to put in the boron racks.

Assuming there is no event that causes us to shut down before we can complete the expansion and assuming we get permission from the NRC to expand, by 1986 we will again lose full core discharge capability and for seismic reasons can no longer seek to expand that plant pool.

Our Brunswick plant in North Carolina where we have shipped the fuel is also full. We have also applied for an amendment to expand its capability. Even if we get that capability, this chart shows a planning base. It is reproduced from a March 1981 report by the U.S. Department of Energy. It shows about 15 to 20 units. Our two are at the top of the list. Even if we can expand our pool, we will run out of full core discharge capability in 1986. Our upper bound is 1986 for one unit, 1985 for the other. There are other units on that list.

[The chart referred to follows:]

NUCLEAR REACTORS WITH NEAR TERM SPENT FUEL STORAGE REQUIREMENTS

	Year When Additional Storage Capacity is Needed	
Reactor	**Planning Base**	**Upper Bound**
Robinson - 2	1986	1986
Brunswick - 1	1986	1985
Dresden - 1	1986	1986
Palisades	1986	1986
St. Lucie - 1	1986	1986
Surry - 1, 2	1986	1986
Oyster Creek	1987	1987
Maine Yankee	1987	1985
Peach Bottom - 2	1987	1986
Peach Bottom - 3	1987	1985
Oconee - 1, 2	1987	1987
Brunswick - 2	1988	1986
Turkey Point - 3	1988	1986
Indian Point - 3	1988	1988
Ginna	1988	1988
Vermont Yankee	1988	1988
Pilgrim - 1	1989	1989
La Crosse	1989	1989
Oconee - 3	1989	1989
Turkey Point - 4	1989	1987
Millstone - 1	1989	1989
Monticello	1989	1989
Fitzpatrick	1989	1989
San Onofre - 1	1989	1989
North Anna - 1, 2	1989	1989
San Onofre - 2	1990	1990

Source: "Spent Fuel Storage Requirements," March 1981 report by the U.S. Department of Energy.

Mr. SMITH. Mr. Ron Leesbury, vice president of Virginia Electric & Power Co., who is here supporting my statement and has one to leave for the record, has a plant on that list, their surry units 1 and 2. It may be that because of more rapid fuel consumption than anticipated they are in even greater danger of closing down.

The utilities represented by these plants are doing, and the legislation encompasses an encouragement for them to do, everything reasonable to expand their onsite storage capability, which I think my testimony demonstrates we have done. The problem is you have 15 to 20 plants in this country where largely because of time problems created by the failure of Congress to act, changes in administration policies—in 1977, the spring, the President announced a policy to defer reprocessing. The policy came out in DOE in 1977 in the fall announcing how they would take the spent fuel from the utilities. That policy was reversed. Time goes by; still Congress has not acted.

The absence of a policy creates a situation of Russian roulette. We do not know which one of these units will shut down first because burnout changes with load and other things. But it is inevitable that one of these units is very, very likely to have to shut down within the time frame shown here—and we are talking about the latter part of this decade—because we do not have the capability to further expand our onsite storage capacity.

Mr. OTTINGER. I do not understand that. John Conway did me the favor of taking me through the Indian Point plants, and the piece de resistance was to go into the spent storage fuel area, and he probably turned off the lights and showed me that it glowed in the dark, and that was supposed to make me feel good.

But basically what it appears you have there and has been successful over the country is a swimming pool. What makes it so difficult that the utilities involved cannot arrange to buy additional land or whatever and pool their resources and get additional swimming pools built to hold this spent fuel?

Mr. SMITH. It is the time, Mr. Congressman. The utilities have been told to deal with different Federal policies all along. First reprocessing, then no reprocessing, then DOE will take it, then DOE will not take it. You can transship it, and then even in the State of Virginia where VEPCO is seeking to move spent fuel from one pool in a plant to another pool in a plant it owns within the same State there are local ordinances which prevent that. In the city of New York there is a lawsuit which involves the inability to ship spent fuel through New York. Transshipment is certainly an option that utilities should expand and try to pursue, but they do not control whether they will be able to do it.

With respect to adding other pools, you are talking about a question of time, the length of time it takes to go through the licensing proceeding, which is an adversarial proceeding, and there are many people in the country who have various concerns. I am sure many of them are quite legitimate, but they do not want a pool expanded to store more fuel because they see this leading to the creation of an infinite number or at least 70 and soon 140 perhaps de facto AFR's around the country.

So our whole process is built against being able to do what was suggested on a timely basis. There is no way we could get a license and build a pool to deal with our needs. We are talking about 2,800 metric tons in this bill. Twenty-eight hundred metric tons of fuel is like a lifeboat. It is probably no bigger than a lifeboat. You could put that much fuel in a large congressional hearing room, a room about 16 by 100 by 20 foot deep. If the Federal Government allows that limited amount of storage, we will have a lifeboat so if any of these plants, whether they are in South Carolina, New Jersey, Michigan, North Carolina, wherever, cannot expand its onsite capability—and it has to meet a very stringent test to demonstrate it; it has tried everything reasonable to do that—then the consumers of the electricity from that plant will be protected and the companies will be protected because there will be a Federal AFR to take that material; and that is all we are talking about. We are talking about a lifeboat.

Mr. OTTINGER. Let me ask one other question and then I will turn to my colleagues.

There is a new technology that has been developed that has dry cask storage, and we have provided in our draft bill and some of the other bills provide for generic licensing so you will not have to go through a separate procedure for each situation.

Could we solve your problem by allowing—by expediting this licensing of dry cask storage? Then the utilities could very readily provide onsite storage through this facility, or maybe the Federal Government at industry expense could keep a full set of these casks available so that plants will not be shut down. We do not want plants to be shut down for failure of storage, but we are concerned because it looks as if the industry has been looking to the Federal Government, and your frustrations are that the Federal Government has changed its signals. And I am not sure why you had to look at the Federal Government in the first place.

But at any rate, could we resolve your problems by this generic licensing of dry storage?

Mr. SMITH. It would certainly help, and it would make it less likely that any of these units would have to shut down; but it does not give the assurance which we need that the units will not be shut down. There are demonstration projects underway today, but there is no demonstrated and licensed technology utilizing dry storage. We think it should be pursued. TVA I think is to be commended for a project they have. Westinghouse and Florida Power and Light——

Mr. OTTINGER. We will hear from them later in this hearing.

Mr. SMITH. But it is inevitable that that cannot be available for all of these plants in order to prevent the danger that they would be shut down because of timing. With dry storage there are some questions such as what length of time should be involved in the cooling; do you use natural draft or do you have a forced convection cooling; do you have to cover the material with a helium blanket; do you use what is called pin disassembly with the dry storage or do you not?

If you get into pin disassembly, for one of our Robinson plants you have about 204 pins and some 157 assemblies in the load. You are talking about 30,000 pins that have to be pulled out. If pins are not pulled out and there is a malfunction, you have the danger of a gas release. It is not as simple as putting the material over on the side, instead of putting it in a swimming pool put it in a big container and have an exhaust flow over it. It is complicated.

We hope it does provide not only our company but other companies a means of expanding their onsite storage capability. If it does—and under the bill I am specifically addressing what I understand is a draft substitute of May 26 which is the only document that we read, and we support that May 26 draft very strongly—I think we should go ahead and pursue dry storage as quickly as possible. And I think that we should also provide for the limited amount of Federal AFR storage so that while we are pursuing dry storage, transshipment and other things, rod compaction, we will not have one of these plants shut down.

Now, when our plant comes back in in the summer, if for any reason we have to unload, there is no place we could take the fuel and it would have to be shut down; and there are other plants that would be in the same situation.

[Testimony resumes on p. 427.]

[Mr. Smith's prepared statement follows:]

Statement of
Sherwood H. Smith, Jr.
Chairman and Chief Executive Officer
Carolina Power & Light Company

on behalf of

The American Nuclear Energy Council
The Edison Electric Institute
The Utility Nuclear Waste Management Group

Mr. Chairman and Members of the Committees:

My name is Sherwood Smith. I am Chairman of the Board, Chief Executive Officer and President of Carolina Power & Light Company (CP&L). My company provides electric services in a 30,000 square mile area with a population of about 3-1/2 million people in North Carolina and South Carolina.

I am pleased to testify today on the May 26, 1982 discussion draft, the proposed substitute for H.R. 3809. I am testifying on behalf of the American Nuclear Energy Council (ANEC), of which I serve as Chairman of the Board; the Edison Electric Institute (EEI), of which I am Chairman of its Policy Committee on Government Affairs; and the Utility Nuclear Waste Management Group (UNWMG), of which CP&L is a member. ANEC represents more than 100 organizations having an interest in nuclear power. The member utilities of EEI provide about 78 percent of the nation's electricity and serve over 67 million customers. The UNWMG is comprised of forty-three utilities with specific interests relating to nuclear waste management. Included in these groups are the approximately fifteen to twenty utilities specifically facing in the near term problems from inadequate spent fuel storage.

The current hearing is being held to consider the May 26, 1982 discussion draft, the proposed substitute for H.R. 3809. The discussion draft is aptly entitled the "Nuclear Waste Policy Act", since it would indeed create a comprehensive national nuclear waste policy. My purpose in testifying here today is to urge you, as strongly as I can, promptly to report out legislation establishing a national nuclear waste policy. The important point is to avoid further Congressional delay. Congress should act, and it should act soon. This Subcommittee is now the critical path for Congressional action on nuclear waste management legislation. You must get on with the legislative process. The country does not want, and cannot afford, further delay.

The need for nuclear waste legislation cannot be denied. A recent public opinion survey found 92 percent of the American people agreed that it is about time for the government to stop procrastinating and start moving ahead on a safe method for storing nuclear waste. Without nuclear waste legislation, we will not have consistent, coherent and stable policy. The public demands nuclear waste legislation. The nation requires it.

About 12 percent of our electricity is generated by nuclear energy. Within a few years, this figure will rise to 25 percent. Commercial nuclear energy plays a vital role today, and will be even more important to our national energy needs in the years ahead.

Regardless of the future of nuclear energy, a solution to nuclear waste disposal issues must be found. Inventories of nuclear wastes already exist. It is clearly in the national interest that a national program for the management of these wastes be established without delay. This is not an issue on which proponents and opponents of nuclear energy should disagree.

The problems surrounding commercial nuclear waste disposal are primarily political, rather than technical. Since the mid-1950's, the Department of Energy and its predecessors have spent many hundreds of millions of dollars on scientific and technical studies, engineering evaluations, site exploration, and on-site testing. The result has been successfully to demonstrate much of the technology which is required to dispose of nuclear wastes.

We are convinced that the technology already exists to implement a sound, conservatively designed program for the geologic disposal of nuclear wastes. The clear majority of the informed scientific and technical community shares this view. To quote from the 1980 National Academy of Sciences Report, "Energy in Transition, 1985-2010":

> No insurmountable technical obstacles are foreseen to preclude safe disposal of nuclear wastes in geologic formations. All necessary process steps for immobilizing high- and low-level wastes have been developed, and there are no technical barriers to their implementation.

The Office of Technology Assessment's recently released report, "Managing Commercial High-Level Radioactive Waste", found that

> Three decades of extensive study have revealed no insurmountable technical obstacles to the development of mined geologic repositories, provided suitable sites are found.

The issue is not whether the technology will be available to carry out nuclear waste management. The problem has been the government's failure to establish and stick to a coherent policy, including the government's inability to set reasonable schedules and meet them. A part of this failure is Congress' lack of action in establishing a national program. The failure of nuclear waste management has been a failure of policy-making. Every new Administration in recent years has felt obligated to reevaluate the waste management programs, change the direction of the program, and set a totally new schedule. Program directions have changed drastically in short periods of time. As a result, the American public has -- with more than a little justification -- questioned whether the federal government is capable of formulating and implementing a coherent nuclear waste program.

The lack of a definitive government policy and the constant shifting of government programs have caused the public to doubt both the government's commitment and its ability to implement a waste management program. As the Office of Technology Assessment report stated:

> The greatest single obstacle that a successful waste management program must overcome is the severe erosion of public confidence in the Federal Government.

OTA urges, and we agree, that a comprehensive program is needed that

> makes a formal Federal commitment to developing several disposal facilities according to a firm and conservative schedule, and guarantees the financial and managerial resources required to meet that commitment.

This comprehensive program must come from Congress. Past experience proves that only Congress can establish stable policy.

Congress has been considering nuclear waste management legislation for years. Numerous hearings have been held in both the House and the Senate. Thousands of pages of hearings and Congressional reports have been published. But Congress has not yet been able to act.

Two years ago, Congress came very close. Both the House and the Senate passed nuclear waste management legislation. However, House passage came late, and the differences with the Senate were not resolved -- allowing comprehensive nuclear waste legislation to die in the 96th Congress.

Now another attempt has been mounted in the 97th Congress to resolve the nuclear waste policy impasse. On April 29, the Senate by the overwhelming vote of 69 to 9 passed S. 1662, its version of the nuclear waste policy act. On the House side, the Science and Technology Committee took the initiative and on November 20, 1981 reported out H.R. 5016, its version of a nuclear waste policy bill. On March 17, 1982, the House Interior Committee reported out H.R. 3809. This Subcommittee and the full Commerce Committee are the next step. Unless there is prompt action to report out nuclear waste legislation, all the efforts invested in resolving this issue will once again be lost.

The May 26 discussion draft which is before you today is a commendable effort to reconcile the remaining unresolved issues. It includes most of the essential elements which we believe must be included in waste management legislation. These elements were contained in a letter signed by seventy utilities and sent to all members of Congress:

- A separate nuclear spent fuel and waste management fund to cover the costs of storage and disposal of commercial spent fuel and high-level waste through reasonable charges to be paid as a cost of service by the electric utility systems;
- A firm time schedule and a disciplined decision-making process at all governmental levels for the selection and construction of a permanent geologic repository;
- A program for off-site storage of spent nuclear fuel on a temporary or interim basis to assure continued operations of nuclear power plants pending ultimate disposition of spent fuel;
- Federal/state participation procedures to enhance state participation and to resolve state concerns regarding the siting of federal nuclear waste facilities; and
- An integrated program of research and development to provide timely information needed to validate site suitability and to develop acceptable repository system designs.

The draft bill before you now, we believe, is by no means perfect. For example, the conditions for interim or temporary spent fuel storage may prove to be so restrictive that utilities will be unable to make use of such storage when they need it. This would clearly not be in the public interest. The discussion draft does not include a program for the monitored, retrievable storage of spent fuel, which is an alternative that ought to be kept open. A test and evaluation facility integrated into the overall program is also missing from the discussion draft. Such a facility could provide perhaps the best way to demonstrate to the public that the technology for waste disposal currently exists. It would also provide a method for validating engineering and operational aspects of the repository program.

There are a number of utilities around the country which face the possibility of having a nuclear unit shutdown in this decade because of inadequate spent fuel storage capacity. Utilities are seeking to minimize this risk by expanding existing on-site capacity, seeking to transport spent fuel from one unit to another, investigating dry storage techniques, fuel rod compaction, and other possible temporizing measures. In the case of my own Company, Carolina Power & Light Company, we have already done a great deal to handle our own spent fuel and to minimize the need for federal AFR capability. Our actions include expanding each of the spent fuel storage facilities at our two operating plants on two different occasions to the maximum capability and shipping over 100 tons of spent fuel from a plant in South Carolina to another plant in North Carolina.

We and other utilities will continue to investigate several possibilities, including additional transshipment to other plants, which might delay the need for governmental storage for fuel from some plants. On the other hand, there are other plants, such as the Surry Units in Virginia, which may well need interim storage sooner because of more rapid fuel consumption. There are forces, unfortunately, working to prevent utility transshipments of spent fuel. For example, there is a recent situation in Virginia in which one county is blocking the intra-utility shipment of spent fuel from another county within the same state. Further, the decision of a federal court regarding truck shipments of radioactive wastes through New York City has called in to question the validity of the Department of Transportation's rules governing the shipment of significant quantities of radioactive materials and spent fuel. At this time, dry storage techniques have not been licensed by the NRC, although there is a demonstration project underway. Thus, while utilities will be trying to use various methods of handling their storage needs, none of these is certain.

The only assurance utilities and customers will have that nuclear units in their service area will not be forced to shut down is the establishment of a reasonable amount of federal AFR capacity. The utilities would pay for this, and there would be no cost to the federal government. It is a need that is mandated because of great fluctuation in federal policy over the past ten years or more and because of uncertainties regarding the licensability of alternative storage technologies in a timely manner. It should be noted that the needed AFR capacity under discussion is very small. For example, the 2800 metric tons maximum storage capacity established in the discussion draft could be accomplished in a pool 28 feet deep with dimensions on the order of 60 ft. by 100 ft. I would observe that such a pool is roughly the size of a large congressional hearing room. This limited amount of federal storage capacity, however, could prevent a plant in Virginia, Michigan, South Carolina, New Jersey, Florida or elsewhere from having to shut down unnecessarily, causing consumers to pay higher costs and perhaps suffer from inadequate electric power.

All of these issues, and others in the discussion draft, could be debated at length. For years Congress has been arguing these points back and forth. By now, everyone's position on the issues should be well known. More important than continued fine tuning is the need to move the legislation through -- and out of -- Congress. If there are differences, let them be resolved in subcommittee and full committee markups, on the House floor or in Conference Committee. Let us not delay action any further.

The full Energy and Commerce Committee must consider nuclear waste legislation and report it out before floor action can take place. Time is running short for passage of a nuclear waste bill by this Congress. The eyes of the nation are upon you. We hope you share our concerns and sense of urgency and we urge you to take prompt action on this legislation. The President's April 28, 1982 letter to Congress applauded the bipartisan Congressional effort on nuclear waste legislation and urged "prompt enactment of legislation that will allow us to move ahead and deal with this issue in a timely and responsible manner." We share these sentiments.

Again, I thank you for this opportunity to appear before you. Now I would be glad to answer any questions and respond to your specific concerns and try to resolve them now to assist you to move ahead with this legislation.

STATEMENT OF THOMAS R. FREY

Mr. Frey. My name is Thomas Frey. I am here appearing for Phil Baynes. I am the senior vice president and general counsel.

I would like to say on behalf of the American Public Power Association and the Power Authority that we have tried vigorously to keep our onsite storage capability high enough to take the overload, but there are limits. You know, of course, from your own experience at Indian Point, which is one of ours, that there is only so much that can be done and we will have to find some way to take care of that in the long run, but I do think it is fair to say that the public power industry as well as private power has tried vigorously to keep up with the problem, and there are a number of problems.

Mr. Ottinger. I just have to say I am very skeptical. I know the Indian Point site. There is plenty of room around that Indian Point site. There is a good number of acres up there to put swimming pools.

Mr. Frey. And it is our intention to the extent we have to do that that we will be glad to do so, but it will cost a huge amount of money each time it is done. It is not the most efficient way to do it, rather than to concentrate it and have it done in a more efficient way, and we have estimates to do that and we will continue to do it to the extent we can, but it clearly is still a better solution to have one national solution where we can deal with this in an adequate way.

Mr. Ottinger. And have it shipped all over the country?

Mr. Frey. Well, some of it is being shipped all over the country now and a lot of it is being shipped all over the country, not because of the nuclear powerplants but because of hospitals and a number of other users of radioactive material. So I don't think we will ever get away from that problem.

Mr. Ottinger. That is low level waste.

Mr. Frey. That is true.

[Mr. Frey's prepared statement follows:]

STATEMENT OF THOMAS R. FREY, SENIOR VICE PRESIDENT AND GENERAL COUNSEL

POWER AUTHORITY OF THE STATE OF NEW YORK

My name is Thomas R. Frey. I am Senior Vice President and General Counsel for the Power Authority of the State of New York. I appreciate the opportunity to address your committee on the need for legislation that would implement a national nuclear waste storage and disposal policy.

In addition to testifying for the Power Authority, I am also testifying on behalf of the American Public Power Association, of which the Power Authority of the State of New York is a member. APPA represents more than 1,750 municipal, state and other local public power systems throughout the Nation. APPA has long favored Federal legislation to resolve the problem of nuclear waste disposal. The Association has a keen interest in this issue because non-Federal local public power systems own more than 14.6 million kilowatts of nuclear power capacity either in operation or under construction. Additionally, a number of APPA member utilities purchase power at wholesale from investor-owned utilities or the Tenessee Valley Authority, which own or are constructing nuclear power facilities.

The Power Authority is the largest non-Federal public power organization in the United States. It operates six major generating facilities, hundreds of miles of transmission lines and provides approximately one-third of the electricity used in New York State. In addition, a portion of its hydroelectric output is sold to agencies in neighboring states.

The Power Authority has approximately 6.8 million kilowatts of installed generating capacity of which almost 1.8 million kilowatts is nuclear. Its two nuclear plants provide electricity for consumers throughout the state, for specified industries and for most of the public agencies -- including mass transit and public hospitals and schools -- in New York City and Westchester County.

The country has for some years awaited resolution of the nuclear waste storage and disposal problem. This is clearly a matter of national policy, beyond the capability of the individual states to resolve. It is encouraging that this Congress has made strides toward enactment of legislation.

The Senate has passed S.1662 and the House Interior Committee has reported out H.R. 3809. The Power Authority supports S.1662 and recommends passage of H.R. 3809 with the following comments:

1. Both S.1662 and H.R. 3809 set forth mandatory dates for the siting and licensing of at least one disposal facility. The Authority strongly supports this concept as one which will ensure that the intent of the legislation is accomplished in a thorough and effective manner.
2. The Power Authority strongly supports a thorough environmental analysis of proposed nuclear waste disposal siting and technology. At the same time, however, that analysis should be structured within

a definite time frame which will guarantee consideration of relevant matters. We believe that the time established for significant milestones for repository development in these bills will accomplish that end. We also note that the need for these facilities has been considered extensively in the public sector, and the provisions of NEPA applicable to that issue should be resolved with the passage of this legislation.

3. We also believe that any legislation on storage of nuclear wastes should contain provisions for "Away-From-Reactor" spent fuel storage facilities and Monitored Retrievable Storage facilities. These type facilities, in addition to providing flexibility in the program, would ensure that existing nuclear generating capacity in this country will continue to operate even if a permanent disposal facility is delayed.

4. We also agree that the program should be financed by the users. This we believe is the most effective means of assessing costs without burdening the nation's taxpayers. This does not mean, however, that such facilities only benefit the ultimate users, the consumers of electricity. For example, the low cost nuclear energy produced by the Power

Authority has served to maintain and encourage commerce and industry in the State of New York. Therefore, a nuclear waste program not only benefits the facilities' users, it is a vital element in the continued economic stability of this country and its efforts to reduce use of foreign oil Such a program thus will have a positive impact on our balance of trade and perhaps even in the conduct of our foreign relations.

5. Finally, the Power Authority applauds the efforts of these bills to include input by State and local governments. The selection of the sites must, however, after review of technical and environmental data, rest with the Federal Government. Certainly, local interests should be considered, but they should not outweigh the needs of the nation.

Time is running out! We hope you share our concern and urge you to take prompt action on this legislation which will provide a technically sound and environmentally safe nuclear waste program.

Thank you.

Mr. **Ottinger**. Let me recognize my colleagues. Mr. Ritter.

Mr. **Ritter**. Mr. Chairman, I really don't have any questions at this moment, but I would urge, for those of us who have luncheon engagements, is it possible that we could take a break at some point and reconvene?

Mr. **Ottinger**. I am afraid not. There is a long list of witnesses and we have had a lot of members here who have asked a lot of questions. The Nuclear Regulatory Commission has a 2 o'clock meeting and I have problems in the afternoon.

Mr. **Ritter**. I do have one, perhaps a comment. The OTA report, Congress' own OTA, has stated that the provision of emergency backup storage capacity—which might be accomplished with existing Federal facilities—would address utilities' concerns about the possibilities that delays in the provision of additional storage capacity would cause reactor shutdowns.

I think OTA has concluded that that is a reasonable possibility for the interim waste storage problem. I think we can also consider that as well.

I would like to just make a point about the transport. I had occasion back in my district to go through a very detailed analysis of how these materials are transported, and I can tell you that on the basis of the hazard to the public health and the public safety, the transport of many of these materials is far safer than, for example, the transport of gasoline in your average gasoline truck.

Now, if your average gasoline truck is hit by another truck head on, it is going to explode and it will probably kill everyone in the general area, certainly the drivers and whoever else bumps into this raging blaze. You have chlorine trucks which are trucking in chlorine to every municipal waste treatment plant in the country.

This is the 20th-century. We do have to take into account the fact that there are hazards out there on the highway, that is true. There is no doubt about it. But the way, for example, the fuel elements are stored, the kind of casks they are stored in prior to shipment, is really a rather substantial engineering safety design feat. Tests have been run out in the desert where a freight train engine has bashed into one of these things at 80 miles an hour. The cask doesn't look the way it did before it got hit—it is highly deformed. Steel is very tough but it is a malleable kind of steel, and after this collision, there is no leakage.

So I think that it is a bit of a red herring to throw out to the people the public safety problem of trucking this stuff over the American highways. I think it has the potential for being dangerous, but it has been addressed and addressed in a way which is far, far safer than your transport of average, everyday 20th-century items such as gasoline or chlorine for your municipal waterplants all over the country.

Mr. **Ottinger**. Are there any other questions?

Mr. **Markey**. I have a question, Mr. Chairman.

Mr. **Ottinger**. The gentleman from Massachusetts.

Mr. **Markey**. Thank you, Mr. Chairman.

Mr. **Ritter**. Excuse me, Mr. Chairman. One more moment, if I might.

I would like to insert something in the record on behalf of a colleague, Mr. Bliley, who could not be here today.

Mr. OTTINGER. I already did.

Mr. RITTER. He asked me if the hearings could be delayed over lunch so that he could be here.

Mr. OTTINGER. I am sorry we are not able to accommodate him.

Mr. RITTER. Thank you, Mr. Chairman.

Mr. OTTINGER. The gentleman from Massachusetts.

Mr. MARKEY. Thank you, Mr. Chairman.

We are dealing in this legislation with a permanent waste repository, and that is the primary reason why we have put this legislation together. What we find is that we spend most of the time debating peripheral issues, among which are the need for away-from-reactor storage.

One of the questions that continually raises itself is whether or not there is a need for legislation for away-from-reactor storage. There has been expedited onsite storage requirements in this legislation and dry storage technologies which are on line, and with transshipment and other options, I don't believe that we really have to deal with the temporary interim storage question, and I think it would probably be a lot easier process for us to just get on to the main question.

You state in your testimony that you will run out of storage in 1986; is that correct?

Mr. SMITH. Yes, we are out of storage today, and if we get approval of an amendment request that has been pending at the NRC for 18 months, and then after we complete the work involved in that, we would again this year regain full core storage capability which would carry us until 1986.

After that we could not then expand the pool, Mr. Markey, and I would like to say I agree wholeheartedly with what may be implicit in your statement, that there is an urgent need for a permanent program and we need an overall solution, and the sooner we get on with a permanent method of handling the material and the ultimate disposition of the high level waste, the fewer of these interim problems we will have.

I would like to associate myself strongly with the need to get on as rapidly as possible with the program for the permanent disposition of the material.

Mr. MARKEY. In May of 1981, the Department of Energy offered the 12 most hard-pressed utilities, including your own, a cooperative onsite program for storage of spent fuel. With the exception of TVA and the Florida Power & Light, every utility with near-term storage needs turned down DOE's offer to enter into a cooperative program to develop onsite technologies.

Additionally, although many utilities have reracked existing storage pools, not one has ever asked the NRC for permission to construct new water storage capacity onsite. What is the problem? Why can't the utilities just do the job onsite working in cooperation with DOE instead of coming to the Federal Government to ask us to construct these AFR's? What is the problem? Why can't you do it? The TVA has taken action. They now tell us that they don't have an interim storage problem, and I don't understand why other utilities can't take the same kind of self-help measures. Put up or shut up. Do it.

I called Vepco, Con Ed, Florida Power & Light, Public Service Gas and Electric and TVA, and I asked them about this interim storage problem. They said put a law on the books saying there is going to be a permanent repository in place at this date, and we will take care of the rest of the problems ourselves.

What I am asking is why can't all utilities do that? What is the problem? Why are some saying we can do it and others saying they can't?

Mr. SMITH. The reason some utilities can and some utilities cannot do it is a function, by and large, of when their plants were built. The earlier the plant was built—and our first arrangement was not to deal with the Government at all, but under Government policy to deal with the Allied Gulf facility at Barnwell for reprocessing. So we complied with Government policy and dealt with Barnwell.

The Government changed its policy in midstream and then later announced that DOE would take the material. You have had a continually shifting change of rules all of the time utilities were operating in the plants, which were designed and licensed under a different set of rules for the newer plants, and the TVA plants that are involved are newer than our Robinson plant. That is why they have more storage capability. There is no question about that. It is a simple matter of when did you start filling up your pool.

With respect to the DOE dry storage effort, the DOE dry storage effort is to be commended. However, the DOE budget is cut back. Our negotiations faltered because the proposition was one that would have our utility or one of several other utilities paying substantially all the research and development costs for a program for the entire country through our customers' rates rather than having them spread through DOE funding.

And the timing was such that there was no way that we could have started at the date of the letter you made reference to with the DOE study program and solved our interim problem now. There is an interest in not duplicating the efforts. I think the industry will benefit from what DOE is doing with TVA, what Westinghouse is doing with Florida Power & Light, and for that reason we may only need 2,800 metric tons of away-from-reactor storage instead of twice that much.

The utilities are going to use and have been using, by and large because it will be more economical, only a limited amount of AFR storage capability. They will follow every reasonable alternative, and I can assure you, Congressman Markey, that our company will do that.

I know you have also expressed concern with regard to military and civilian, and I think that everyone feels there should be an expedited solution to the military problem. We have supported the project at Savannah River, which is the demonstration vitrification of material there. I hope that Congress will proceed.

There are a lot of arguments one hears back and forth. The material is different. Ours is spent fuel. The military's is high level waste. There are questions of national security that could be compromised in the licensing process. If the material is comingled, there is a question of whether or not the civilian material is paying its full share of the costs, which we intend to do and I think the public should expect us to do.

For all of those reasons, while I want the military material problem solved as quickly as possible, I tend to associate myself with some comments that were made by one of the gentlemen earlier. That delays are our biggest problem and the greatest risk is to see again what happened in 1980, that we will get right up to the brink and then we will not be able to get a bill dealing with civilian material because Congress hasn't arrived at a consensus decision. That is my big fear.

Mr. Markey. I would just like to return back to this question of interim storage. In your 10K filing, Carolina Power & Light Co. before the Securities and Exchange Commission, December 31, 1981, the company plans to provide for spent fuel storage capability within its own facilities into the late 1990's.

Mr. Smith. That is exactly right. That is what I was saying. We plan to do it, other companies plan to do it, but we don't have the ability to do it.

Mr. Markey. Well, what were your plans? You told the Securities and Exchange Commission on December 31, 1981, that you plan to provide for spent fuel capabilities within your own facility.

Mr. Smith. Well, we have said that all along. Since the policy of the Federal Government has changed, what happens is the absence of Federal policies and preemption prevent us from being able to do it. If we can store fuel at our own facilities through 1980, through 1990 and on beyond into the year 2000, we would propose to do it.

The same language is in the 10K that was filed last year. That illustrates the point. We are trying to do it, but we don't control it, we don't have the ability to do it.

Mr. Markey. The TVA has the ability to do it but you don't?

Mr. Smith. Yes, TVA has the ability to do it for a longer period of time because they built plants later and they haven't built up the same amount of spent fuel, and they built in larger initial storage capabilities. They have more time to do it than the companies listed on this chart that was just held up.

Mr. Markey. And how about Florida?

Mr. Smith. The same situation. Their St. Lucie plant will run out of full core discharge capability long before this governmental activity, the NRC licensing process will have approved a demonstrated dry storage capability that solves their problems.

Mr. Leasbury. Congressman Markey, I would add also that VEPCO, and I don't know who you talked to, but we certainly support the permanent solution for high level waste, but we also support strongly the interim solution. We run out, contrary to the dates on the chart, at our Surry units at the end of 1984 on a full core discharge basis, and 2 years after that we would run out of ability to even refuel that station.

Mr. Markey. Then why is the TVA doing these pilots and not you?

Mr. Leasbury. We were asked to perform a pilot program who would take one cask onsite. One cask doesn't help us in any way, shape, or form.

Mr. **Markey**. Did you not explore any further any cooperative agreements with the Department of Energy to try to find an interim solution to your problem awaiting the permanent waste problem?

Mr. **Leasbury**. In our discussions with DOE, the only possibility of any discussion was in some program such as dry cask storage. Again, it would have been a single cask of approximately 24 assemblies, and our problem is much greater than 24 assemblies.

Mr. **Markey**. But the pilot project is to be used only to exemplify what can be done in a larger scale.

Mr. **Leasbury**. Yes. We are a strong believer in dry cask storage. We have looked at what the Europeans have done. They have a very successful cask storage facility program now, but currently there is only one person before the NRC now with what I call a topical report to ask for consideration of the use of dry cask storage. The industry cannot design the cask. We have to depend upon some company to design and license the cask before we think of using it.

Mr. **Markey**. Then why have you never requested expansion of onsite or the construction of new water pool storage capacity?

Mr. **Leasbury**. We have doubled our storage at both our North Anna and Surry sites. We were caught up again in this indecisiveness, I believe, in the Federal Government's policies that said there would be a place to put the fuel. Today we are engineering, designing and engineering facilities to be licensed both wet and dry at our Surry facility, but there is no way those facilities can be licensed even in time to solve our problem, let alone licensed and constructed.

Two or three years ago if we had started we would not yet have a wet storage facility that would solve our problem. We couldn't do it in the schedule required 2 or 3 years ago. We believe very strongly there would be away-from-reactor storage.

Mr. **Markey**. So you are saying that despite the fact that the Europeans already have operating dry cask storage, since we are only doing demonstrations in this country, that we have to as a result build an away-from-reactor site that you are saying can be constructed in less time than additional onsite capacity could be constructed in individual locations. Is that your argument?

You are saying that if we pass this legislation now, we will have an AFR licensed and constructed before you can build additional onsite capcacity?

Mr. **Leasbury**. I don't think you can build it much faster than I can, to be honest with you, if you decide to build a wet pool. For that reason, we still have to find some way to handle our problem, either with legislation like this or by transshipment. Transshipment is our preferred alternative, but as was mentioned, there is one county in our State that has legislation on the books saying we can't store any fuel in that county that wasn't generated in that county.

So we have a solution. We prefer to use transshipment.

Mr. **Markey**. You prefer to use it. All right. The Feds pick up the bill there.

Mr. **Leasbury**. No, we pick up the bill. The customers pick up the bill.

Mr. OTTINGER. The time of the gentleman has expired.

Does anyone else want to ask questions of the industry panel?

The gentleman from North Carolina has joined us. We are pleased to have him, the ranking minority member of the committee.

Mr. BROYHILL. Thank you, Mr. Chairman.

I think we ought to explore this somewhat further. The industry does support the expansion of onsite storage; is that correct, Mr. Smith?

Mr. SMITH. Absolutely, Mr. Broyhill. As we have said, we support it. We have amendments in our own situation where we are seeking to do that, and other companies do also.

Mr. BROYHILL. Let me find out what the facts are. I am hearing a couple of sides to this. My understanding is that the utilities have attempted to expand their onsite storage capacity and have run into licensing delays. Is this a fact or not a fact?

Mr. SMITH. That is a fact, Mr. Broyhill, and I would hope the expression of views by the majority of the NRC, which I understand have been transmitted to this committee, that favor the expedited review of this so that we will be able to promptly expand our onsite capability will be included as a part of this legislation.

Mr. BROYHILL. Well, obviously we don't want to exclude the public from being heard in these requests for licensing and expansion of onsite storage capacity. Could you give us some examples of the undue delays that are really unnecessary as to how we can shorten this? What shortcuts can be made without saying that the public doesn't have a right to express their views?

Mr. SMITH. Of course, it is one thing for the public to have the right to express its views in a legislative forum such as we have today where views are expressed, received, and considered. It is another matter altogether where you have an adversary legal proceeding with hearings going on interminably where there is cross-examination, recross, rebuttal, and re-rebuttal.

The May 26 draft substitute as we view it is a minimum bill. It is a bill we support very strongly. To the extent that that bill can be improved by more expedited licensing proceedings, perhaps keeping open the options of monitored retrievable storage, we think that that would be a desirable way in which to improve the bill.

In our situation we applied for an amendment to expand a pool in 1980. We still have not received approval. We hope and expect that approval will be soon forthcoming, but that is an 18-month delay over the expansion of a pool which had gone through a similar licensing proceeding for the first expansion several years before, and we have gone through two or three environmental impact statement procedures. There was really nothing new.

Mr. BROYHILL. Are you saying they are going over ground that has been gone over before, issues that have been resolved by the NRC in the past?

Mr. SMITH. Yes, sir, that is a great concern. There doesn't seem to be any way to deal with an issue one time fully and put it to rest, and we favor allowing everyone with an interest to participate in that first decisionmaking process.

Mr. BROYHILL. I have no other questions right at this time, although perhaps other members would like to ask questions.

STATEMENT OF SEYMOUR RAFFETY

Mr. **Raffety**. Mr. Chairman, I haven't spoken yet. I am Seymour Raffety. I would like to, if I could, endorse on behalf of Dairyland Power Cooperative and the National Rural Electric Cooperative Association the statements made by Mr. Smith and Mr. Frey.

I would also like to say that I believe very sincerely that we need a political solution to these problems; that one of the biggest problems in getting these facilities built that you are talking about is the assurance in the public hearing processes that there is an ultimate solution.

If we can get a good waste bill passed and demonstrate to the public we do have the technical and political solutions, then I think the utilities will be in a much better position to go ahead and get the licensing they need and build the plants they need.

I would also like to make one comment on something I believe Mr. Markey said. DOE does have the capability for a more timely solution to some of these imminent shutdowns and they probably could arrange for space, if not takeover of the Barnwell plants, the Morris site, or possibly storage in some of the other DOE facilities.

Mr. **Ottinger**. They would still have to be licensed.

Mr. **Smith**. The bill, as we understand it, provides in part for storage at existing Federal facilities that would not be licensed. That was in H.R. 3809.

Mr. **Ottinger**. That is a point of contention.

Mr. **Raffety**. Morris is licensed. Barnwell probably could be soon. At least you don't have the construction to be concerned about.

[Mr. Raffety's prepared statement follows:]

Statement of the National Rural Electric Cooperative Association

Mr. Chairman, I am Dr. Seymour Raffety. I am employed by Dairyland Power Cooperative in the postition of Reactor Engineer at the La Crosse Boiling Water Reactor which is owned and operated by Dairyland Power Cooperative. Today I represent Dairyland Power Cooperative and also the National Rural Electric Cooperative Association (NRECA) and its Ad Hoc Advisory Committee on Nuclear Power of which I am a member.

Dairyland Power Cooperative is an electric generation and transmission cooperative headquartered in La Crosse, Wisconsin, which supplies electric energy at wholesale to 29 member distribution cooperatives. These member cooperatives are located in Western Wisconsin, Southeastern Minnesota, Northwestern Iowa and Northwestern Illinois. These systems supply electric requirements of 165,000 rural households in 62 counties.

Dairyland is a fully integrated electric supply system which has an installed operating capability in excess of 1,000 megawatts and over 3,200 miles of transmission line to supply the requirements of its members. Dairyland is entirely owned by its member systems which in turn are entirely owned by their consumer-members. Dairyland is governed by a Board of Directors which includes representatives of each member system.

From an energy planning standpoint, it is significant that the Dairyland area has a significant requirement for energy supplies of all types, but is not blessed with a single fossil-fuel resource—no coal, oil, natural gas, or peat. All of our energy supplies must be imported fron outside the area. Most farm and recreational enterprises in the area are family-owned and operated and are dependent upon electric service for their continued prosperity and even survival. Dairyland is fully aware of its responsibility to these consumer-members and has historically been an industry leader in such areas as nuclear power development, regional power planning and pooling, and participation in national energy development programs.

The National Rural Electric Cooperative Association represents over 1,000 member systems, including the Dairyland Power Cooperative systems, serving central station electricity to some 25 million consumers. We are dedicated to providing the safest, most reliable and most economical electrical power to its consumer members.

NRECA has been supportive of nuclear power ever since it became a viable source of electric generation. Nineteen of its generation and transmission cooperatives are participants in joint nuclear ventures, representing over 33,000 MWe of nuclear generating capacity. Nuclear power is of particular interest to us, since sites for power plants, reprocessing plants, and nuclear waste storage facilities are often in or proposed for its service areas. We believe, therefore, the NRECA is in a unique position to speak for much of the population in the vicinity of such facilities (our consumer-owners) and indeed has an obligation to do so.

Our association strongly supports the urgent need for nuclear waste management legislation. We are in general agreement with the statement delivered by Mr. Sherwood H. Smith, Jr., Chairman and Chief Executive Officer of the Carolina Power & Light Company.

Our membership at the 40th annual meeting in Atlanta, Georgia, on February 10, 1982 unanimously adopted the following resolution which supports legislation designed to take care of the disposal of nuclear waste:

Radioactive waste management has been the subject of countless studies and reports. The overwhelming consensus of these studies is that radioactive waste can be handled and disposed of safely, with no serious public health and safety or environmental effects.

Many competent groups have determined that the technology and means are at hand to safely store and dispose of nuclear waste. . . .

We urge the Federal Government to immediately provide and implement an affirmative policy and program for the safe storage and disposal of nuclear waste.

We urge the Congress of the United States to pass legislation which will allow for the safe "away from reactor storage" and the creation of a Federal repository for the dispoal of long-lived nuclear wastes.

On closing, I wish to emphasize the importance of providing for a Federal waste disposal program now, and thereby demonstrate to the public that the technology is available for safe disposal of high level nuclear waste.

We appreciate the opportunity to present our views.

Mr. OTTINGER. Mr. Corcoran, the NRC will have to leave, so I would like to get to them.

Mr. CORCORAN. Most of my questions have been answered, but I do have a question of Mr. Smith, and that is in connection with the so-called Udall bill, H.R. 3809, which has been reported by the Interior and Insular Affairs Committee. There is, as you know, the provision for a last resort emergency storage program for the surplus spent nuclear fuel, and I am just wondering if in your evaluation or the evaluation of EEI or the American Nuclear Energy Council you believe that there will be sufficient time to get that kind of emergency storage program in place by the point when we understand, around 1986, some of the utilities will reach a shutdown position.

Mr. SMITH. Yes, very definitely I do believe there is enough time to get that program in place, Mr. Corcoran. The facilities are by and large in existence now. It is not a question of finding the site and starting from scratch. I think the utilization of existing facilities does mean the program could be put in place very quickly.

And again, we are only talking about a small amount of material. It is a lifeboat, a pool the size of a large congressional hearing room. And one cannot say which plant will be the first that would shutdown, but out of that group of 15 to 20, it is inevitable that several of them are very, very likely to have to shutdown if we don't have that Federal lifeboat.

Mr. CORCORAN. What would be the change in your answer if we were to license that emergency last resort kind of facility as opposed to not licensing it?

Mr. **Smith**. It would depend, of course, on the kind of licensing proceeding involved. If licensing is placed into the process, I would hope that it would be an expedited proceeding, perhaps an environmental assessment, rather than the 5- to 10-year environmental NEPA-type proceedings that go on without ending.

I think that there is a role, certainly, for the application of NEPA in this whole process, but I would hope it would be a role that is constructive of the process and not just destructive through indefinite delay.

Mr. **Corcoran**. Thank you very much for your testimony.

Mr. **Ottinger**. All right. We thank you all for being with us.

Mr. **Smith**. Thank you, Mr. Chairman.

And in June of 1979, Congressman Dingell, then Chairman of the Subcommittee on Energy and Power, submitted a long series of questions to us. We provided those answers in the hearing in 1979, but they were never incorporated into the record, and along with my statement, to make sure that we have answered all of the technical questions that have been raised, for the purpose of the record in this proceeding, if I may, I will leave Congressman Dingell's letter to the American Nuclear Energy Council and then our reply of 1979.

Mr. **Ottinger**. We would be glad to have that for the record. Thank you.

[Testimony resumes on p. 514.]

[The letter referred to and a related response follow:]

NINETY-SIXTH CONGRESS

JOHN D. DINGELL, MICH., CHAIRMAN

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CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON ENERGY AND POWER
OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
WASHINGTON, D.C. 20

June 6, 1979

Mr. John Conway
President
American Nuclear Energy Council
1750 K Street, N.W., Suite 300
Washington, D. C. 20006

Dear Mr. Conway:

On June 25, 26 and 27, 1979 the Subcommittee on Energy and Power will hold hearings on H.R. 2586, which is a bill to authorize the Secretary of Energy to receive title to spent fuel and to acquire and construct facilities for the interim storage and ultimate disposal of such spent fuel. You are invited to appear and testify on this bill before the Subcommittee on Monday, June 25. The hearing will be held in Room 2123 of the Rayburn House Office Building and is scheduled to begin at 10:00 a.m.

While you may submit a detailed statement of whatever length you deem appropriate, which will be inserted in full into the hearing record, you are requested to present an oral summary which is no longer than ten pages, double-spaced, and typed on only one side. You are further requested to submit 30 copies of both your detailed statement and your summary to the Subcommittee office by noon on June 20 and to bring an additional 70 copies of your summary statement to the hearing on the day of your appearance for distribution by the Subcommittee staff.

In addition to whatever general comments you may wish to make regarding H.R. 2586, you are requested to include in your detailed statement responses to the following questions:

1. Please provide a chart showing the quantity in metric tons of spent fuel which has been generated by the operation of commercial nuclear power plants from 1960 to 1978.

    A. Please provide a separate chart for each subcategory below showing at the present burn-up rate the quantity in metric tons of spent fuel which will be generated by the operation of domestic commercial nuclear power plants from 1979 to the end of the plant's operating life for all reactors which (i) are presently in operation; (ii) have applied for an operating license; (iii) are under construction but which have not applied for an operating license; (iv) have applied for a construction permit; (v) have been announced; and (vi) all of the above.

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2. Please provide a separate chart for each of the categories listed below which shows, on an annual basis through the year 2000, the cumulative quantity in metric tons of spent fuel generated by nuclear power plants operating at 70% capacity and normal burn-up for which away-from-reactor storage is needed because:

   A. (i) the existing on-site storage capacity has been completely utilized;

      (ii) the existing on-site storage capacity has not been completely utilized, but off-site storage is needed in order to maintain full core discharge capability;

      (iii) the existing on-site storage capacity and the additional storage capacity that will be provided by pending expansion or modification applications will be completely utilized (a) without maintaining full core discharge capability, and (b) with maintaining full core discharge capability.

      (iv) the existing on-site storage capacity and the additional storage capacity that could be provided by expansion or modification will be completely utilized (a) without maintaining full core discharge capability, and (b) with maintaining full core discharge capability.

      (v) the existing on-site storage capacity and the additional storage capacity that is presently contracted for with existing away-from-reactor storage facilities together with the additional storage capacity that (a) will be provided by pending expansion or modification, and (b) could be provided by expansion or modification will be completely utilized (I) with or (II) without maintaining full core discharge capability.

   B. Please provide a separate chart for each of the above categories which assumes each reactor operates at (i) a specified higher rate of fuel burn-up; (ii) a 60% capacity factor; and (iii) an 80% capacity factor.

   C. Please provide a separate chart showing the cumulative quantity in metric tons of spent fuel from nuclear power reactors operating at 70% capacity and normal burn-up for which away-from-reactor storage would be needed on an annual basis through the year 2000 if there were (i) no inter- or intra-utility trans-shipments; (ii) intra-utility shipments; (iii) inter-utility shipments within the same NERC region; and (iv) unlimited inter-utility shipments.

3. Please provide a chart showing the estimates for the costs per kilogram of disposing of spent fuel that have been made by the Council, and identify the source of such estimates.

   A. What is the present estimate for the cost of (i) providing away-from-reactor interim storage, and (ii) ultimate disposal of spent fuel?

   B. What are the major components of such costs, and what is the cost of each such component? Please specifically include construction costs, operating costs, maintenance costs, transportation charges, handling charges, licensing costs, and the decommissioning and disposal of the interim storage facility?

   C. What is the basis for estimating the cost of each component?

   D. What would be the cost of disposing of spent fuel if reprocessing were subsequently allowed?

   E. What are the major components of the costs of disposing of reprocessing nuclear spent fuel, and what is the individual cost of each such component, including the cost of decommissioning and disposing of the reprocessing facility?

   F. If reprocessing were allowed (i) how much reusable material would be recovered, and (ii) what would be the commercial value of such material?

   G. What are the present estimated cost of providing on-site interim storage for spent fuel generated by a nuclear reactor during its operating lifetime?

   H. Please discuss the relative merits of on-site storage vs. away-from-reactor storage including specific consideration of (i) technical, (ii) regulatory, (iii) economic, (iv) transportation, (v) health and safety, (vi) environmental, and (vii) safeguard considerations?

   I. Please provide the names of all studies which have been conducted on behalf of the Department of Energy on the costs of the disposal of spent fuel and supply three copies of each.

   J. What is the present estimated costs in terms of mills per kilowatt hours of providing interim storage and ultimate disposal of spent fuel?

(i) Please identify any additional current studies of estimated costs, provide the estimated costs contained in such studies, and a brief critique of such estimates.

4. Please provide a separate chart indicating the total costs of implementing H.R. 2586 through the year 2020, assuming (i) low nuclear energy growth; (ii) probable nuclear energy growth; and (iii) high nuclear energy growth.

   A. How many (i) away-from-reactor interim storage facilities, and (ii) terminal repositories will have to be built to meet the requirements for each subcategory listed above?

   B. When should the first away-from-reactor interim storage facility be operational, and what is the basis for this response?

   C. What is the estimated cost of each such facility?

   D. When do you believe the first terminal repository could be operational, and what is your basis for this response?

   E. What method for disposing of waste should be used for the first terminal repository and why?

   F. Given that reactors which are presently being planned or under construction are aware of the indefinite deferral of reprocessing, should their owners not assume that interim storage is a problem they must solve themselves?

5. Please provide a list of the names of all reactors which have had to discharge their entire core, the date of such discharge, and a brief explanation of the reasons.

6. Please provide a list of the names of all reactors which (i) have already expanded or modified their existing on-site storage capacity, and (ii) have submitted applications to expand or modify existing on-site storage capacity.

   A. Please identify when each application was submitted and where applicable approved.

   B. Please identify by name those reactors which are incapable of expanding or modifying their existing on-site storage capacity and provide a brief explanation of the reason.

7. Please identify any technical, regulatory, or other factors which would impede the expansion or modification of any existing on-site spent fuel storage pool or the construction of additional on-site storage pools, and provide a brief discussion of each. If any such impediment is unique to a particular reactor, or group of reactors, or exists only in a

particular state, please identify by name each such reactor or state and provide a brief explanation of the problem?

8. Is the present level of technical knowledge sufficient to establish a licensed terminal nuclear waste repository and why?

   A. Should the Congress implement the recommendation of the Interagency Review Group on Nuclear Waste Management that the federal government establish a number of intermediate scale licensed terminal repositories in a variety of geologic media and why?

   B. What are the (i) technological, and (ii) economic advantages and disadvantages of expeditiously proceeding to dispose of large quantities of spent fuel in deep geological repositories as opposed to having such deep geological disposal proceeded by long-term surface storage?

9. Should the states be given the authority to veto or non-concur in the selection of (i) an interim storage facility, or (ii) terminal repository within their borders and why?

   A. If the states are given this authority, at what stage in the process should they be allowed to exercise it?

   B. Should the states be given the right to non-concur in the (i) design, (ii) construction, and (iii) operation of such facilities?

   C. Should the states' grounds for non-concurring be limited to specific causes, and if so, please identify these causes?

   D. Who within the state has the authority to exercise the right of non-concurrence?

10. As proposed, H.R. 2586 provides for a single fee to utilities to cover the cost of both interim storage and ultimate disposal.

   A. Do you support the concept of a single fee for both interim storage and ultimate disposal, and if so why?

   B. What problems would result if the charge for interim storage were separated from the charge for ultimate disposal with the final charge being assessed at a later date when the costs were more certain?

   C. If, as proposed in this legislation, the federal government were to take title to the spent fuel upon delivery, do you support the provision which would permit the return of the spent fuel to the former owner and a refund of an appropriate portion of the charge if it is later determined that spent fuel may be reprocessed, and if so why?

D. Do you support the concept that any government operated program for the interim storage and ultimate disposal of spent fuel recover all its costs and why?

E. Please provide a list of the costs you believe (i) should and (ii) should not be recovered.

F. If reprocessing is subsequently allowed and an appropriate portion of the fee is refunded, how will the federal government be able to recover the full costs for storage?

11. The Department of Energy has announced its intention to require a prepayment of part of the fee to finance a portion of its spent fuel policy.

A. Do you support the concept of a partial prepayment of the fee? Please provide an explanation of your response.

B. Please identify any legal impediments which would prevent a utility from providing a partial prepayment of the fee, including citations of any state law or regulatory body rules or decisions.

C. Please provide an explanation of any tax problems which would result from the partial prepayment of a storage and disposal fee.

12. As proposed, H.R. 2586 would impose upon the federal government the responsibility for providing both interim storage and ultimate disposal of spent fuel.

A. Do you support the concept of imposing upon the federal government the responsibility for providing interim storage? Please provide an explanation for your response.

B. Do you believe private industry is capable of providing away-from-reactor storage? Please provide an explanation of your response.

C. Do you believe the fee charged to foreign customers should be the same as that charged to domestic customers and why?

13. Are there any provisions or conditions which should be added or deleted from H.R. 2586 ?

Please notify by June 15 the Subcommittee Counsel, Michael J. Ward, who can be reached at (202) 225-1034 of your intention to testify at this hearing and feel free to contact him if you have any questions regarding your testimony.

I look forward to receiving your testimony.

With every good wish,

Sincerely,

John D. Dingell
Chairman

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JOHN H. SHARON
EDWARD B. CROSLAND
COUNSEL

November 26, 1979

The Honorable John D. Dingell,
  Chairman
Subcommittee on Energy and Power
Committee on Interstate and Foreign
  Commerce
House of Representatives
Washington, D.C. 20515

Dear Congressman Dingell:

By letter dated June 7, 1979, you asked Mr. Sol Burstein, Executive Vice President of Wisconsin Electric Power Company and Chairman of the Radioactive Waste Management Group, to testify before your Subcommittee on the question of nuclear spent fuel storage and H.R. 2586. The hearing date, originally scheduled for June 25th, was rescheduled for July 11th, and thereafter indefinitely postponed. We now understand that this third day of hearings on H.R. 2586 will not be held.

Due to Mr. Burstein's unavailability on the original date of the hearings, Mr. Roth S. Leddick, Director of Special Nuclear Programs for Northern States Power Company, was prepared to testify on behalf of the Radioactive Waste Management Group and the Edison Electric Institute. We are enclosing for the record the prepared text of Mr. Leddick's statement. Additionally, in your letter to Mr. Burstein, you posed a number of specific questions that are generally applicable to all electric utilities with nuclear power plants. The Edison Electric Institute has compiled detailed responses to those questions which are also enclosed with this letter. One of the questions (#4) deals with the frequency of full core discharge of all fuel from a nuclear reactor. In this regard

BEST DOCUMENT AVAILABLE

The Honorable John D. Dingell
November 26, 1979
Page Two

a study was performed for the Edison Electric Institute which provides a statistical and analytical basis for the planning assumption of a full core reserve in the spent fuel pool of an operating nuclear power plant. A copy of this study is also enclosed.

On behalf of the Radioactive Waste Management Group and the Edison Electric Institute, we request that Mr. Leddick's prepared statement and the two additionally enclosed documents be bound into the record of the hearings held on H.R. 2586. We recommend that the record of the hearings be closed and a report be issued based on the testimony and exhibits in the record.

It is significant to note that with one exception (Mr. Dexter Peach), every witness who testified before your Subcommittee on June 26th and 27th concurred with the need for a Government-operated spent fuel storage facility. These witnesses included representatives of industry, the states the Department of Energy, the Nuclear Regulatory Commission and the Interagency Review Group on Waste Management (which itself encompasses the collective views of fourteen government entities including such diverse groups as the Environmental Protection Agency, Office of Management and Budget, National Security Council and Council on Environmental Quality). This overwhelming consensus among such disparate groups, we believe, is a forceful indication of the universal recognition of the need for Federal away-from-reactor storage of spent fuel. The electric utilities, who would be required to deal with the difficulties and enormous expense of providing substitute electric power in the event nuclear power plants were shut down due to inadequate spent fuel storage, can only underscore the unequivocal need for Federal spent fuel storage capacity.

We look forward to working with your Committee to develop workable and responsive solutions to the spent fuel storage question.

Very truly yours,

Gerald Charnoff

Gerald Charnoff
Counsel to the Radioactive
Waste Management Group

cc: Honorable Clarence J. Brown
Honorable Tom Corcoran

Enclosures

Responses to

Questions Asked

In the Letter

From

Congressman John D. Dingell

QUESTION

1. Please provide a chart showing the quantity in metric tons of spent fuel which has been generated by the operation of commercial nuclear power plants from 1960 to 1978.

U.S. LWR SPENT FUEL
DISCHARGE AND STORAGE ANALYSIS

SUMMARY

June 1977

Fuel Discharged

Discharge Date Year	Assemblies Discharged PWR	BWR	Total	MTHM*	Discharge Burnup MWD/MTHM
1962	74	190	264	41.61	7466
1963	40	-	40	11.06	10150
1964	36	97	133	20.66	11094
1965	38	200	238	32.31	11404
1966	36	60	96	17.91	12135
1967	40	136	176	23.65	11564
1968	36	183	219	31.78	14753
1969	76	119	195	29.97	19535
1970	54	178	232	64.79	17959
1971	114	402	516	106.95	13685
1972	282	748	1030	236.55	13620
1973	165	458	623	146.58	17630
1974	499	1335	1834	438.29	15755
1975	935	1070	2005	566.88	16597
1976	1112	1565	2677	766.30	18305
1977	1346	3025	4370	1073.23	20619
1978	1973	3142	5115	1352.83	23367

* The cumulative MTHM is 4,961.

SOURCE: Nuclear Assurance Corporation, "U.S. LWR Spent Fuel Inventory and Projection," Y/OWI/SUB-77/42500, June 1977.

This chart, prepared by NAC for ERDA provides data regarding the spent fuel discharged from LWRs between the years 1962 and 1978. Prior to 1962, quantities of spent fuel discharged were insignificant since few power plants had been on line long enough to discharge spent fuel. The "Report to the President by the Interagency Review Group on Nuclear Waste Management" of March 1979 states that prior to 1979 the cumulative spent fuel generated was 4,400 MTHM. The NRC's "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel" of August 1978 (NUREG-0575) estimates the cumulative spent fuel discharged prior to 1979 at 4,700 MTHM. The NRC figure includes 480 MTHM in storage at the facilities of Nuclear Fuel Services and General Electric but does not reflect the approximately 300 MTHM reprocessed prior to the moratorium on such procedures. The IRG figure does not include either of these two elements. Therefore, the NAC data corresponds to the IRG and NRC data once the latter two are corrected for that in storage and/or previously reprocessed.

1A. Please provide a separate chart for each subcategory below showing the present burn-up rate the quantity in metric tons of spent fuel which will be generated by the operation of domestic commercial nuclear power plants from 1979 to the end of the plant's operating life for all reactors which (i) are presently in operation; (ii) have applied for an operating license; (iii) are under construction but which have not applied for an operating license; (iv) have applied for a construction permit; (v) have been announced; (vi) all of the above.

The following chart, presented in the DOE draft Environmental Impact Statement, "Storage of U.S. Spent Power Reactor Fuel", of August 1978, shows projections from several sources of the amount of spent fuel discharged for a nuclear power growth projection of 380 GWe by the year 2000.

The chart has been altered to provide updated estimates from the NRC FGEIS on Handling and Storage of Spent Fuel of August 1979 (boxed column on chart). The newer NRC figures are based upon a nuclear power growth projection of 230 GWe by the year 2000. A compilation by reactors according to the above-mentioned categories has not been developed. The Institute agrees that this range of forecasts properly presents the quantity of spent fuel that will be discharged from power reactors for both projections used.

FORECASTS OF DOMESTIC FUEL DISCHARGED, MTU

YEAR	SOURCE GWE in CY-2000:	AMOUNT OF FUEL DISCHARGED, MTU				
		NRC 230	NRC 380	DOE 1977 380	BLOMEKE 380	NAC APRIL 1977 380
1976		Pre-1979: 4700	2500	2000	2200	1925
1977			940	1000	1113	1034
1978			1110	1000	1225	1357
1979		1420	1260	1300	1511	1863
1980		1520	1410	1300	1511	1863
1981		1640	1660	1400	1658	1896
1982		1850	1950	1600	1786	2473
1983		2100	2110	1900	1993	2876
1984		2300	2260	2200	2279	3240
1985		2440	2340	2700	2620	3981
1986		2650	2340	2900	3043	4316
1987		2840	2250	3400	3445	4731
1988		3050	3210	3600	3791	5038
1989		3300	3560	3900	4115	5229
1990		3600	3960	4200	4444	5190
1991		3720	4360	4600	4796	5251
1992		3950	4740	4900	5171	5660
1993		4200	5210	5200	5564	6115
1994		4380	5660	5700	5965	6550
1995		4620	6090	6000	6392	7007
1996		4840	6520	6500	6852	7506
1997		5100	6940	6900	7324	8009
1998		5460	7310	7300	7787	8510
1999		5730	7630	7800	8249	9010
2000		5800	7910	8100	8699	9510
		81,240	95,240	97,400	103,406	119,802

Source (except "NRC/230"): Draft Environmental Impact Statement, Storage of U.S. Spent Power Reactor Fuel, DOE/EIA-0015-D U.S. Department of Energy, Washington, D.C. (August 1978), p. II-7.

Source of "NRC/230" : Final Generic Environmental Impact Statement, Handling and Storage of Spent Light Water Power Reactor Fuel, U.S. Nuclear Regulatory Commission (August 1974)

Sources used by DOE for Forcasts of Domestic Fuel Discharged:

NRC/380: Draft Generic Environmental Impact Statement, Handling and Storage of Spent Light Water Power Reactor Fuel, U.S. Nuclear Regulatory Commission, Washington, D.C. (March 1978).

DOE 1977: R.W. Bown and R.H. Williamson, "Domestic Uranium Requirements," Paper presented at Uranium Industry Seminar, Policy and Evaluation, U.S. Department of Energy, Grand Junction, CO (26 October 1977).

Blomeke: C.W. Key, C.W. Alexander, and J.O. Blomeke, Projections of Spent Fuel to be Discharged by the Nuclear Power Industry ORNL/TM-6008, Draft, Oak Ridge National Laboratory, Oak Ridge, TN (27 July 1977).

NAC: C.B. Woodhall, et al.,"U.S. and Free World Discharged Nuclear Fuel, Storage and Transportation Analysis,"Report prepared for USERDA by Nuclear Assurance Corporation (NAC), Atlanta GA (April 1977).

QUESTION

2. Please provide a chart showing the estimates for the costs per kilogram of disposing of spent fuel that have been made by the Department of Energy and its predecessors since 1960, and identify the source of such estimates.

   A. What is the present estimate for the cost of (i) providing away-from-reactor interim storage, and (ii) ultimate disposal of spent fuel?

   B. What are the major components of such costs, and what is the cost of each such component? Please specifically include construction costs, operating costs, maintenance costs, and the decommissioning and disposal of the interim storage facility?

   C. What is the basis for estimating the cost of each component?

   D. What would be the cost of disposing of spent fuel if reprocessing were subsequently allowed?

   E. What are the major components of the costs of disposing of reprocessing nuclear spent fuel, and what is the individual cost of each such component, including the cost of decommissioning and disposing of the reprocessing facility?

   J. What is the present estimated costs in terms of mills per kilowatt hours of providing interim storage and ultimate disposal of spent fuel?

DOE has developed a number of cost estimates to support various scenarios and industry circumstances. However, a comparison of these is not meaningful since each is based on a different set of assumed parameters. The two most recent estimates have been presented in 1) Draft Environmental Impact Statement-Management of Commercially Generated Radioactive Waste, DOE/EIS-0046D, April 1979 and 2) Preliminary Estimate of the Charge for Spent-Fuel Storage and Disposal Services, DOE/ET-0055, July 1978. The Institute believes the DOE cost estimates are on the high side but a rigorous evaluation of these estimates has not been performed by the Institute. The pertinent sections of the referenced documents are provided in Attachments A, B & C for your convenience.

QUESTION

2.F. If reprocessing were allowed (i) how much reusable material would be recovered, and (ii) what would be the commercial value of such material?

Estimated Energy Value of Spent Nuclear Fuel

The potential energy value of spent fuel discharged from domestic nuclear plants is substantial whether viewed in terms of either natural uranium resource conservation or the production/importation of oil. Utilization of both the uranium and the plutonium in spent fuel would reduce LWR nuclear fuel requirements for uranium by about 33 percent; this is detailed in Figure 1, wherein a fuel U^{235} assay of 3.0 percent are assumed. The recoverable uranium in spent fuel has the potential to reduce natural uranium feed requirements by about 17 percent and the recoverable poutonium has the potential to separately reduce feed requirements by about the same amount. The reduction for plutonium is conservatively based on the recovery of at least 5 grams of fissile plutonium per kilogram of spent fuel and the fact that 1 gram of fissile plutonium is equivalent to 0.85 grams of U^{235} in LWR fuel elements.

Assuming 142 MTU (185 STU_3O_8) as the typical annual natural uranium requirements for a 1,000 MWe (1GWe) LWR without spent fuel utilization, Figure 2 shows that, the natural uranium requirements could alternatively be 95 MTU (124 STU_3O_8) plus uranium and plutonium recovered from the annual discharge of 26 metric tons of spent fuel. This recovered material is approximate to that required to fuel 0.33 GWe of nuclear capacity for one year. Viewed another way the energy value of one metric ton of spent fuel may be defined as equivalent to 2.3 tons of natural uranium STU_3O_8.

The energy values in the spent fuel may be related to the energy equivalent of oil for producing electricity. The annual quantity of electricity produced by a 1000 MWe nuclear power plant operating at 65 percent capacity factor is equivalent to the electricity produced by burning 10 million barrels of oil. Thus, the energy value of one metric ton of spent fuel is 127,000 barrels of oil. The foregoing may be used to determine that the lowest estimate of 81,240 MTHM of spent fuel forecasted to be discharged in the U.S. by the year 2000* will represent an energy potential equivalent to about 10 billion barrels of oil and a possible balance of payments potential of $200 billion; this value assumes import oil at a cost of $20 per barrel. If recent increases in the cost per barrel of imported oil continue, the balance of payments savings could easily rise to double that (in 1979-dollars) by the year 2000**.

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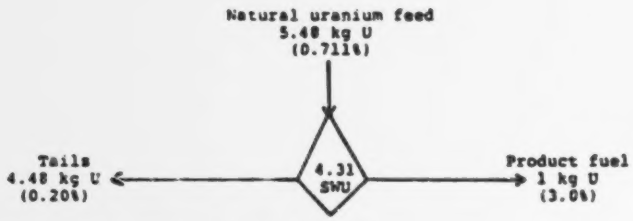
* See Question 1A.

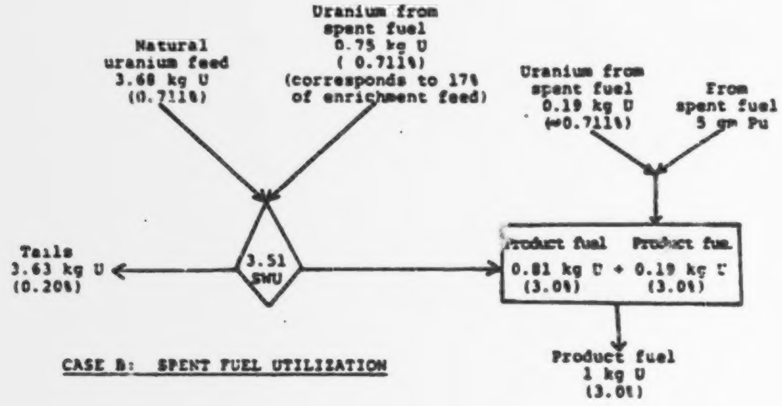
** If cost per barrel is assumed to be $50, then balance of payment savings could increase to approximately $500 billion.

FIGURE 1

URANIUM AND ENRICHMENT
FEED, PRODUCT, AND TAILS RELATIONSHIPS


Natural uranium feed
5.48 kg U
(0.711%)
4.31
SWU
Tails
4.48 kg U
(0.20%)
Product fuel
1 kg U
(3.0%)

CASE A: NO SPENT FUEL UTILIZATION


Natural
uranium feed
3.68 kg U
(0.711%)
Uranium from
spent fuel
0.75 kg U
(0.711%)
(corresponds to 17%
of enrichment feed)
Uranium from
spent fuel
0.19 kg U
(≈0.711%)
From
spent fuel
5 gm Pu
3.51
SWU
Tails
3.63 kg U
(0.20%)
Product fuel
0.81 kg U
(3.0%)
+
Product fuel
0.19 kg U
(3.0%)
Product fuel
1 kg U
(3.0%)

CASE B: SPENT FUEL UTILIZATION

See following page for backup.

Figure 1 backup data:

Case A is based on conventional uranium enrichment relationships (U as UF_6).

- o Feed to Product ratio = $\frac{3.0-0.2}{0.711-0.2}$ = 5.48*

- o Product, Feed & Tails Assay = 3.0%, 0.711% and 0.20% U^{235}

Case B is based on the following:

- o $\frac{5(\text{gmPu}) \times 0.85(U^{235}\ \text{Pu equivalence}) \times 100}{[3.0(\%U^{235}) - 0.711(\%U^{235})]1000(\text{gm/kg})}$ =

  0.186 kg U spent fuel enriched with Pu ≅

  19% of 1 kg U product

- o 1 - 0.19 = 0.81 (81% of 1 kg U product from enriching)

- o uranium recovered from spent fuel equals 17% of enriching feed; i.e. for each 5.48 kg U feed a kg U of 3% fuel is obtained (0.20% tails) and approximately 0.95 kg U will eventually be discharged at an assay close to 0.711%; thus

  $$\frac{0.95 \text{ kg U} \times 2.6 \text{ lb } U_3O_8/\text{kg U}}{5.48 \text{ kg U} \times 2.6 \text{ lb } U_3O_8/\text{kg U}} \times 100 = \frac{2.47}{14.25} \times 100 = 17.3\%$$

- o (1 - 0.17) x 5.48 x 0.81 = 3.68 kg U (natural uranium feed for enriching)

- o 0.17 x 5.48 x 0.81 = 0.75 kg U (recovered uranium feed for enriching)

- o (5.48 - 3.68)/5.48 x 100 = 32.8% ≅ 33% (natural uranium feed reduction for Case B versus Case).

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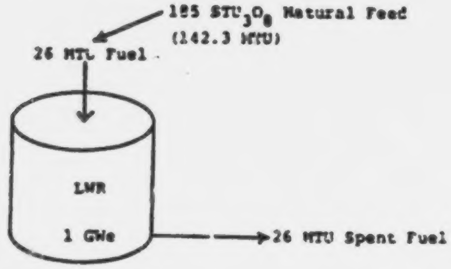
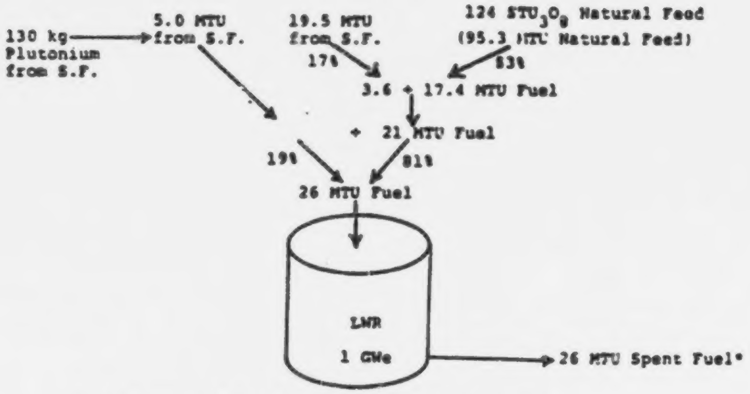
* For a 1 GWe LWR requiring 26 MTU fuel per year at 3% U^{235} assay, the annual natural uranium feed requirement is obtained as 5.48 x 26 MTU x 1.3 STU_3O_8/MTU = 185 STU_3O_8.

FIGURE 2

TYPICAL 1 GWe LWR ANNUAL FUEL RELATIONSHIPS


185 STU$_3$O$_8$ Natural Feed
(142.3 MTU)
26 MTU Fuel
LWR
1 GWe
26 MTU Spent Fuel

CASE A: No Spent Fuel Utilization


130 kg Plutonium from S.F.
5.0 MTU from S.F.
19.5 MTU from S.F.
17%
124 STU$_3$O$_8$ Natural Feed
(95.3 MTU Natural Feed)
83%
3.6 + 17.4 MTU Fuel
+ 21 MTU Fuel
19%
81%
26 MTU Fuel
LWR
1 GWe
26 MTU Spent Fuel*

* 24.5 MTU and 130 kg Pu recoverable from S.F.

CASE B: Spent Fuel Utilization

QUESTION

2.G. What are the present estimated costs of providing on-site interim storage for spent fuel generated by a nuclear reactor during its operating lifetime?

The reracking plans in spent fuel storage pools of operating reactors will extend the storage capability for several years. However, this will not accommodate the storage of spent fuel generated during their operating lifetime of up to 40 years. A separate storage pool would be required at each site to permit on-site storage for the full reactor lifetime. Several estimates have been made for a separate on-site storage pool and the assumptions used as a basis for the estimates vary considerably. Current estimates for such facilities are not considered to be reliable. Engineering scaling factors may be applied to the DOE estimate for a stand alone facility of 5000 MT to provide a comparable cost estimate for a 1200 MT storage facility needed for each 1GWe plant lifetime storage. The very rough estimate of $25 million is considered to be unrealistically low and does not reflect the uncertainties associated with NRC potential licensing requirements.

The cost of achieving on-site storage capability may be secondary to the legal constraints that may be imposed by states and localities on obtaining permission for extended on-site storage.

QUESTION

2.H. Please discuss the relative merits of on-site storage vs. away-from-reactor storage including specific consideration of (i) technical, (ii) regulatory, (iii) economic, (iv) transportation, (v) health and safety, (vi) environmental, and (vii) safeguards considerations?

(i) Technical

The technical aspects of the two options are essentially equivalent. However, future AFR installations could benefit from state-of-the-art advances e.g. improved fuel and cask handling devices, compacted storage and improved cooling regimes. The associated R&D and backfit requirements would not be economically feasible or practical at the smaller scale site facilities.

(ii) Regulatory

The present regulations in 10CFR50 and 10CFR70 can be used as a basis for review and approval of modifications to existing pools and construction of additional storage pools at power reactor sites. For installations built specifically as an independent spent fuel storage installations, regulation 10CFR72 would govern.

(iii) Economic

The comparative economics of the two options, on-site storage and large size (5000 MT) AFR's, have not been rigorously studied. In addition to basic construction costs, such a comparison must account for other variables associated with each (e.g. transportation costs, operating manpower requirements, interest charges, and intangibles.) The AFR concept provides for more efficient capital expenditures. Economy of scale benefits would apply to the AFR option, a large central facility would cost less than a number of smaller individually owned facilities located throughout the country.

(iv) Transportation

The cost of transportation for on-site facility may be less than that for an AFR. However, if the AFR is located at or near a reprocessing or disposal facility, the difference in overall cost of transportation to the point of eventual disposition may be very small.

(v) Health and Safety

There is little or no apparent difference in the health and safety aspects of the two alternatives.

(vi) Environmental

There is no significant adverse environmental impact for either alternative.

(vii) Safeguards

With regard to safeguards considerations, the NRC has indicated that spent fuel storage facilities can be adequately protected in either case. However, the costs of safeguarding an AFR would be less than the cost for several smaller facilities.

QUESTION

2.I. Please provide the names of all studies which have been conducted on behalf of your Association on the costs of the disposal of spent fuel and supply three copies of each.

Cost estimates have been made by DOE as referenced in the response to Questions 2.A.-2.J. Based on informal and undocumented calculations the Institute believes the DOE cost estimates are on the high side, but a rigorous evaluation has not been performed. Institute-sponsored studies have not addressed the disposal of spent fuel in light of the fact that this approach would result in the loss of a significant energy resource for the nation.

QUESTION

3.A How many (i) away-from-reactor interim storage facilities, and (ii) terminal repositories will have to be built to meet the requirements for each subcategory listed above?

The number of AFR's required will be one or more. There are no technical limits to the size of an AFR. There fore one AFR could adequately serve the needs of all current and planned reactors. However, due to transportation and logistical considerations it may be desirable to have more than one AFR. The actual number is more a function of the geographical requirements, utilization of existing non-reactor facilities, and the continued status of reprocessing and disposal programs, than that of the quantity of fuel discharged. The optimum "number" of AFR's would be determined by the economic factors of transportation and available facilities plus any future and as yet unknown regulatory restraints regarding storage quantity concentration.

Based on the current (DOE) calculation that a typical repository can contain an equivalent of 45,000 MTU of fuel, the repository requirements might be satisfied by 2-3 facilities although it will be the end of the century before more than one may be required.

QUESTION

3.B. When should the first away-from-reactor interim storage facility be operational, and what is the basis for this response?

The utilities concur with DOE's analysis of the need for away-from-reactor storage. The first AFR should be operational in 1983 according to the analysis performed by DOE, "Spent Fuel Storage Requirements - The Need for Away-From-Reactor Storage." This is based on providing operating power plants with a full core offload capability and assumes that reactor pools have been expanded to the fullest extent practical. Unter today's energy picture, shut down of any nuclear power plant for an extended period of time as a result of a lack of spent fuel storage capacity cannot be justified on a cost-benefit basis.

QUESTION

3.C. What is the estimated cost of each such facility?

Refer to Question 2.

QUESTION

3.D. When do you believe the first terminal repository could be operational, and what is your basis for this response?

DOE estimates that the first terminal repository could be operational in the period 1988-1992. However, utilities recognize the uncertainty regarding the federal government's capacity to meet such target dates.

QUESTION

3.E. What method for disposing of waste should be used for the first terminal repository and why?

The first repository should be in a deep geologic mine in light of the greater depth of knowledge on geologic disposal.(1) (See Question 7)

QUESTION

3.F. Given that reactors which are presently being planned or under construction are aware of the indefinite deferral of reprocessing, should their owners not assume that interim storage is a problem they must solve themselves?

Utilities are aware of the problem and are considering appropriate contingency measures in the event the federal government fails to meet its commitments in this regard. Plants currently in the planning, design, or early construction phase are considering storing spent fuel for an interim period and are instituting measures to provide the capability of extended storage (full operational life time) should it become warranted sometime in the future.

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(1) See U.S. Department of Energy, Draft Environmental Impact Statement, "Management of Commercially Generated Radioactive Wastes," Volumes 1 and 2, April 1979.

QUESTION

4. Please provide a list of the names of all reactors which have had to discharge their entire core, the date of such discharge, and a brief explanation of the reasons.

A study on the experience of and need for full core discharge has been conducted for the Edison Electric Institute and a copy of the study report entitled, Full Core Removal Study is attached. There have been 82 experienced full core removals from nuclear power plants and they are listed in Table 1 of the report. A statistical evaluation of the data reveals that based on 90 percent confidence, a full core discharge might be required every three years. A total of 143 full core discharge occurrences can be expected between now and 1990. This study emphasizes that a full core discharge capability at each reactor is economically necessary even though it is not required from a safety standpoint.

QUESTION

5. Please provide a list of the names of all reactors which (i) have already expanded or modified their existing or on-site storage capacity, and (ii) have submitted applications to expand or modify existing on-site storage capacity.

   5.A. Please identify when each application was submitted and where applicable approved.

   5.B. Please identify by name those reactors which are incapable of expanding or modifying their existing on-site storage capacity and provide brief explanation of the reason.

The following table, "Spent Fuel Storage Capacity - 5/15/79" provided by the U.S. Nuclear Regulatory Commission, shows those reactors that have requested expansion of existing on-site spent fuel storage capacity, the increase in capacity requested, and the dates of those requests which were approved. Since the first formal proposal to increase on-site storage capacity in 1974, there have been 50 applications to modify storage capacity. Of those 50 applications, 44 were for first-time and 6 were for second-time modifications. The 44 first-time applications provide for increased storage capability for 60 of the 67 light water reactors actively operating today.

In addition, Dr. Joseph Hendrie stated in response to questions from Morris K. Udall of January 11, 1979:

> Most nuclear plants that are currently being reviewed for operating licenses are proposing to increase the storage capacity of their fuel pools by redesign for the spent fuel storage racks. Of the 19 facilities currently under review, 15 have submitted requests for approval to expand storage capacity.

SPENT FUEL STORAGE CAPACITY - 5/15/79*

Licensee	Original Capacity	Requested Expansion	Approval
Arkansas Nuclear One 1	253 Bundle	590	12/76
Arkansas Nuclear One 2	486	——	-
Beaver Valley 1	272	833	5/78
Big Rock Point	193	441	-
Browns Ferry 1, 2 & 3	1080 (each)	3471 (each)	9/78
Brunswick 1 and	720 (each)	1386 (each)	10/77
Calvert Cliffs 1 and 2	190 (each)	528 (each)	1/73
Cook 1 and 2	500	2050	-
Connecticut Yankee	336	1172	6/76
Cooper	740	2366	9/78
Crystal River 3	256	1163	-
Davis Besse	260	736	-
Dresden 1	672	——	-
Dresden 2 and 3	1160 (each)	1440 (each)	1/78
(Second)	1440 (each)	3780 (each)	-
Duane Arnold	510	2050	7/78
Farley 1	675	——	-
FitzPatrick	760	2244	-
Fort Calhoun	178	483	7/76
Ginna	210	595	11/76

*Source - U. S. Nuclear Regulatory Commission

Licensee	Original Capacity	Requested Expansion	Approval
Hatch 1	840	—	-
Hatch 2	1120	—	-
Indian Point 2	264	482	12/75
Indian Point 3	264	840	3/78
Kewaunee	176	990	3/79
LaCrosse	84	134	3/76
(Second)	134	440	-
Maine Yankee	318	953	10/75
Millstone 1	880	2184	6/77
Millstone 2	301	667	6/77
Monticello	740	2237	4/78
Nine Mile Point 1	1140	1984	1/78
(Second)	1984	3009	-
North Anna 1	400	966	-
Oconee 1 and 2*	336	750	-
Oconee 3	216	474	12/76
Oyster Creek	840	1800	3/77
Palisades	276	798	6/77
Peach Bottom 2/3	1100 (each)	2816 (each	11/78
Pilgrim 1	900	2320	8/78

Licensee	Original Capacity	Requested Expansion	Approval
Point Beach 1 and 2	296	351	10/76
(Second)	351	1502	4/79
Prairie Island 1 and 2	198	687	8/77
Quad Cities 1 and 2	1140 (each)	1460 (each)	1/78
Ranco Seco	244	579	6/76
Robinson 2	236	272	2/76
Salem 1	264	1170	-
St. Lucie 1	310	723	3/78
San Onofre 1	216	—	-
Surry 1 and 2	464	1044	3/78
Three Mile Island 1	174	496	12/77
Three Mile Island 2	442	—	-
Trojan	280	661	11/78
Turkey Point 3 and 4	217 (each)	621 (each)	3/77
Vermont Yankee	600	2000	9/77
Yankee Rowe	172	391	12/76
(Second)	391	721	-
Zion 1 and 2	340	868	8/76
(Second)	868	2112	-

Storage capacity at fuel reprocessing facilities expressed in MT (metric tons). One MT is equivalent to about PWR bundles or 5 BWR bundles.

*On site fuel transfer requested and approved as part of action taken for other units on site.

QUESTION

6. Please identify any technical, regulatory, or other factors which would impede the expansion or modification of any existing or on-site fuel storage pool or the construction of additional on-site storage pools, and provide a brief discusion of each. If any such impediment is unique to a particular reactor, or group of reactors, or exists only in a particular state, please identify by name each such reactor or state and provide a brief explanation of the problem.

As shown in the response to question 5, 60 of the 67 currently operating light water reactors have modified or submitted an application to modify existing pool storage capacity. Any further attempts to expand capacity through reracking will be extremely limited by space and structural limitations. NRC has stated that there are no regulatory constraints that limit the quantity of spent fuel that can be stored or transferred. Furthermore, the safety analyses to date have shown that proposed increases would have a small impact on the design and safety considerations. (1)

Construction of additional on-site storage pools faces several barriers including the proliferation of prohibitive state and local regulations, intervenor opposition, lead-time considerations, high costs, and a growing public perception problem. Additional on-site storage programs may have a difficult regulatory outlook due to state regulations such as that now facing Baltimore Gas and Electric which is required to continuously update its permission to store spent fuel at the Calvert Cliffs Site. Briefly stated, the lead-time problem is such that the current estimate for the licensing, design, and construction of an on-site independent spent fuel storage facility is approximately 7 years.

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(1) See responses to Questions asked in Letter from Morris K. Udall to Joseph Hendrie, January 11, 1979.

A major barrier to new spent-fuel storage construction at exisiting reactors, as long as the federal government fails to demonstrate the feasibiilty of permanent storage, is the the public's perception that such actions would result in de facto permanent storage of the spent fuel elements. Several states have already opposed such construction on this basis. For example, Minnesota opposed Northern State Power Company's request to expand Prairie Islands spent fuel storage pool capacity. In the future, intervenor groups may further delay construction on this basis.

It should be noted that if a utility were to construct an additional storage pool for the sole purpose of interim storage, it would be designed for the total plant operating lifetime whereas an AFR could be designed and built on an incremental basis thereby avoiding construction of unneeded excess space (in the event of early repository operation) and premature capital expenditures.

QUESTION

7. Is the present level of technical knowledge sufficient to establish a licensed terminal nuclear waste repository and why?

Alternatives for the safe disposal of all forms of radioactive wastes are discussed comprehensively in the document, ERDA 76-43 entitled, Alternatives for Managing Wastes from Reactor and Post-Fission Operations in the LWR Fuel Cycle. There is ample basis for the conclusion reached in the February, 1978, Report of Task Force for Review of Nuclear Waste Management, DOE/ER-0004/D: "There appears to be a substantive consensus and valid technical basis for the view that present plans and actions should rely on geological containment of wastes which can be achieved in a safe and environmentally acceptable manner." While there is always more than can be learned from additional research and development activities and additional detailed data is needed at this time (re USGS, Circular 779 and DOE/ER-0004/D), there has been no scientific inquiry or review that has identified a valid technical fact that precludes geologic containment.

The utility industry concurs with the many expert opinions that ultimate disposal of radioactive wastes presents no insurmountable technical problems and that satisfactory methods of high level waste solidification and disposal in a geologic formation are achievable as an environmentally satisfactory method that fully protects the health and safety of mankind. Scientific and technical knowledge presently available is sufficient to permit the site selection, conservative design, and construction of the first Federal repository for commercial high level wastes in a salt or other geological formation.

QUESTION

7.A. Should the Congress implement the recommendation of the Interagency Review Group on Nuclear Waste Management that the federal government establish a number of intermediate scale licensed terminal repositories in a variety of geologic media and why?

Intermediate scale facilities (ISFs) may provide early information, data and experience and in this regard serve a useful purpose. However, if the site selection and licensing approach for the ISFs are the same as the process applicable for a full waste repository, then little may be gained. An early selection of an acknowledged repository site with a planned limited disposal operation during its first fiew years of operation could serve the same functions and purpose of an ISF and also fulfill the need for designating a repository location. The concerned public may view the ISFs as a continuation of the previous hedging approachs of the Federal government rather than a resolution of the waste management issue. Such a view would likely be a deterrent to the future of nuclear energy.

QUESTION

7.B. What are the (i) technological, and (ii) economic advantages and disadvantages of expeditiously proceeding to dispose of large quantities of spent fuel in deep geologival repositories as opposed to having such deep geological disposal preceded by long-term surface storage?

Technologically, either alternative is achievable. Surface storage of greater than 20 years would permit additional cooling of the spent fuel before it is placed in a repository which in turn may decrease the overall area required to dispose of the fuel.

Long-term surface storage may have a major economic advantage in permitting ready access to the energy values in spent fuel if reprocessing is delayed for an extended period. The equivalent energy value within the spent fuel is extensive as discussed in response to question 2.F. and it must be recognized as a national energy resource that some day will be recovered and used.

QUESTION

8. Should the states be given authority to veto or non-concur in the (i) design, (ii) construction, and, (iii) operation of such facilities?

EEI would like to reaffirm its policy, previously stated in the EEI Policy Statement on the Management of High Level Wastes and Spent Fuel (August 1978) and in the EEI Comments on the draft IRG report, regarding the role of the states in the development of a national waste management program.

An effective cooperative program is necessary between the Federal government and the states for the selection of waste repository locations. A workable program must recognize the practical and political aspects -- and constraints -- of the Federal and state systems. States must have the opportunity to participate in the national waste program and there must be a sound mechanism established for constructive Federal/state relations in all aspects of Federal decision-making and regulatory review process. Beginning at an early stage, candidate states should be encouraged to actively participate with the Federal government during site investigation activities and assist in evaluating sites for a waste repository within their states. In addition to participating in the evaluation of site suitability for the waste facility being considered, the state should also have the opportunity to actively participate in any Nuclear Regulatory Commission review and approval procedures for the site. An objective should be the evolution of a program which reflects state expertise and viewpoints throughout all stages of the program.

State objections must be given full consideration and the program must include a provision for resolving Federal/state disagreements. The approach should encourage cooperative resolution of the problems in a manner acceptable to both the states and the Nation. However, since repositories are needed to serve the national interest, an individual state or locality should be limited in its authority and not be permitted a veto authority to prevent construction, use of, or access to a repository site that is determined to be suitable and useable in a safe and environmentally satisfactory manner.

The Federal program could include mechanisms that defray costs of the state's participation in the process and provide appropriate impact assistance to the state and local governments throughout the investigation, site selection, facility implementation, and long-term management phases. Even though an objective analysis is expected to demonstrate a positive socio-economic benefit and a minimal environmental effect, impact assistance elements, including reimbursements, where appropriate, and incentives should be of sufficient magnitude to encourage state and local governments to participate positively in programs relating to the establishment of a waste repository.

EEI supports the creation of the IRG recommended State Planning Council (SPC) as it appears to be a reasonable approach for an overview body to assist with the Federal/state/local relations. However, the SPC's efforts should be restricted to an overview function. The SPC can assist but not supplant the Federal government's responsibility of striving for social acceptance of waste management.

QUESTION

9. As proposed, H.R. 2586 provides for a single fee to utilities to cover the cost of both interim storage and ultimate disposal.

   9.A. Do you support the concept of a single fee for both interim storage and ultimate disposal, and if so why?

   9.B. What problems would result if the charge for interim storage were separate from the charge for ultimate disposal with the final charge being assessed at a later date when the costs were more certain?

   9.D. Do you support the concept that any government operated program for the interim storage and ultimate disposal of spent fuel recover all its costs and why?

   9.E. Please provide a list of the costs you believe (i) should and (ii) should not be recovered.

The utility industry supports the concept of a single fee payment for both interim storage and ultimate disposal with the payment to be made at the time of title transfer. The government operated program should recover all of its cost from the users of the storage and disposal service and the full cost should be borne by those electricity customers benefitting from the electricity that generated the spent fuel. Thus, the full cost should be defined as early as possible to permit the electricity customers to pay their full share for the subsequent services.

Single fee payments should apply to annual increments of spent fuel and since a nuclear power reactor is expected to be in service for 30 to 40 years, there will be 30 to 40 single fee payments. Each Payment should be the best available estimate of actual and projected costs associated with each annual increment. The Federal Government is responsible for the disposal of high level wastes and there is no alternate route for the utilities except to deliver either spent fuel or high level waste to the Federal Government over the full life of the plant. Thus, the 30 to 40 years of annual single fee payments will permit annual adjustments to assure full recovery of costs by the Federal Government from all utilities uniformally. A close match can be achieved between the payment by electricity customer based on the best available cost estimate and the actual costs that will be encountered. This approach appears to be the most equitable arrangement for the electricity customers, utilities and the Federal Government.

Separation of the interim storage and ultimate disposal fee tends to defeat one of the basic desires of the concept, that is, those electricity customers who benefit should bear their full share of the subsequent storage and disposal costs. By delaying the payment of the disposal fee, a separation is made between those who benefit from the service and those who pay for the service. The full costs will be recovered over the life of the Federal facility by adjusting the annual fee as better estimates are defined. While different fees are needed for storage plus disposal and for disposal only, there is no apparent advantage in separating the payment of storage and disposal when both services are required.

Only those costs associated with the programs for storage and disposal of commercially produced spent fuel should be included in the charges for such service. Those costs incurred by the Federal Government for storage and disposal of foreign spent fuels should not be allocated against the domestic utilities. Also all costs associated with military and government generated nuclear wastes should not be included. Since the development and demonstration of waste repositories will provide knowledge applicable to both military and commercial disposal activities, these costs should be appropriately allocated to both programs. Any cost, either past or future, related to reprocessing and fixation of high level wastes other than spent fuel should not be allocated against the disposal of spent fuel. Specific criteria for determining the charge for storage and disposal of spent fuel should be established within legislation. The criteria in the existing legislation for uranium enrichment charges are an appropriate example.

QUESTION

9.C. If, as proposed in this legislation , the federal government were to take title to the spent fuel upon delivery, do you support the provision which would permit the return of the spent fuel to the former owner and a refund of an appropriate portion of the charge if it is later determined that spent fuel may be reprocessed, and if so why?

9.F. If reprocessing is subsequently allowed and an appropriate portion of the fee is refunded, how will the federal government be able to recover the full costs for storage?

As noted in response to question 2.F., the equivalent energy value within the spent fuel discharged from reactors by the year 2000, is about 12 billion barrels of oil with a dollar value range between $240 and $600 billion depending on whether the price of oil in the year 2000 is $20 or $50 per barrel. When reprocessing is permitted, these values should flow back to the rightful owner, the electricity rate payer, less any cost incurred for storage and recovery. Since the original charge would be on the basis of disposal of the spent fuel, any unused or uncommitted portion of the charge should be refunded when the spent fuel is returned for reprocessing. The portion of the fee to be refunded should be determined at the time the spent fuel is returned and the appropriate full cost of storage should be retained by the Federal Government.

The utilities expect to pay the full cost of the government storage and disposal programs. No subsidy is desired for this service and the charges should balance with the costs to preclude subsidy to the Federal Government on other programs through excess utility charges.

QUESTION

10. The Department of Energy has announced its intention to require a prepayment of part of the fee to finance a portion of its spent fuel policy.

    A. Do you support the concept of a partial prepayment of the fee? Please provide an explanation of your response.

    B. Please identify any legal impediments which would prevent a utility from providing a partial prepayment of the fee, including citations of any state law or regulatory body rules or decisions.

    C. Please provide an explanation of any tax problems which would result from the partial prepayment of a storage and disposal fee.

Payment in full for both storage and disposal when the spent fuel is physically transferred to the Federal Government is appropriate and is an acceptable form of prepayment since the storage and disposal costs will be incurred for many years after the spent fuel is transferred.

Experience of utilities on their prepayments to the Federal Government on enrichment contracts has been quite unsatisfactory because the Federal Government has since confiscated the prepayment when a power plant schedule has been significantly delayed or cancelled even though the Federal Government did not construct facilities to sdrvice the contracts. Prepayment for spent fuel storage and disposal services without a designated storage facility or a disignated repository is viewed with considerable concern.

Under the present tax laws, the collection of revenues to be applied toward future costs result in taxable income. It appears that a change is required in the tax legislation to accommodate the collection of non-taxable revenues to offset the future payments for storage and disposal of spent fuel.

QUESTION

11. As proposed, H.R. 2586 would impose upon the federal government the responsibility for providing both interim storage and ultimate disposal of spent fuel.

    11.A. Do you support the concept of imposing upon the federal government the responsibility for providing interim storage? Please provide an explanation for your response.

The need for additional storage capacity for spent nuclear fuel is a direct result of President Carter's announcement on April 7, 1977 that the United States would defer indefinitely all civilian reprocessing of spent nuclear fuel. This position was initiated because of the Administration's concern that reprocessing might contribute to the potential for the proliferation of nuclear weapons capability to nation's that currently do not have a weapons capability. Since this changed position of the Federal Government is motivated by national security concerns the Federal Government has an obligation to work with the nation's electric utilities to achieve an equitable resolution for the needed spent fuel storage capability.

Nuclear power plants are currently producing over 12 percent of the nation's electric power and this is expected to reach 27 percent by the mid 1980's with the nuclear power plants presently being built. The consequences of interrupting any significant quantity of this nuclear generation capacity as a result of a lack of spent fuel storage space would be severe and must not be allowed to occur. The Institute believes it is essential that the government take immediate steps to assure that the nation's nuclear power production will not be crippled because of a lack of available spent fuel storage capacity. Reasonable provisions of spent fuel storage and reprocessing had been made by utilities on the basis of prior government assurances that reprocessing and recycling of fissionable material from spent fuel were permissible and desirable. The government has been and continues to be responsible for fulfilling its Congressionally mandated task of managing and disposing of high-level radioactive wastes. Since permission to reprocess has been indefinitely deferred and a high-level waste repository is not currently available, interim storage of spent fuel is required at away-from-reactor (AFR) facilities since storage capacity at reactors is limited.

QUESTION

11.B. Do you believe private industry is capable of providing away-from-reactor storage? Please provide an explanation of your response.

Private industry is technically capable of providing away-from-reactor storage, however, under the present climate of regulations, public sentiment and governmental indecision it is unlikely any private concern could justify an AFR venture.

QUESTION

11.C Do you believe the fee charged to foreign customers should be the same as that charged to domestic customers and why.

Any provisions in the DOE program resulting in special costs to accommodate spent fuel from foreign sources should not be permitted to increase the charges to domestic customers. Foreign participation is acceptable on the basis that any extra costs to provide such service to them be allocated to the foreign customers. Provisions in the DOE program to accommodate spent fuel from other countries should not take precedence over domestic requirements for spent fuel storage nor should they be permitted to increase the charges to domestic customers.

Attachment A

QUESTION 2 Supplemental Information

EXCERPT FROM DOE/EIS-0046-D-Volume 1

DRAFT ENVIRONMENTAL IMPACT STATEMENT

MANAGEMENT OF COMMERCIALLY GENERATED RADIOACTIVE WASTE

April 1979

Waste Management Systems Costs. Waste management costs have been developed in terms of 1978 constant dollars for the entire reference nuclear power generating system (10,000 GWe-yr of electric power generation through year 2040). All spent fuel, high-level and other TRU waste management costs covering treatment, interim storage, transportation and disposal in geologic repositories are included. Costs for decommissioning the ISFSFs, FRPs and MOX-FFPs and management of decommissioning TRU wastes in the reprocessing cases are also included. Nuclear power plant decommissioning costs are not included. Costs for the four reference fuel cycles are covered as well as the delayed repository cases and the deferred fuel cycle decision cases. The last FRP is dismantled in 2075 so the cost calculations cover a period of nearly 100 years.

The total system cumulative costs are presented in consolidated format in Table 3.1.89 classified by seven major cost categories. The spent fuel storage category includes only unpackaged spent fuel storage at both nuclear power plant basins and ISFSFs. The spent fuel transportation category includes only transport of unpackaged spent fuel from a power plant to an ISFSF and to packaging or to reprocessing. (Storage of spent fuel prior to reprocessing and shipment of unpackaged spent fuel to reprocessing are not necessarily waste management costs. However, to provide comparability among all fuel cycles and because the radioactivity in the reprocessing waste originates in the spent fuel, costs for these functions are conservatively included in waste management. Alternatively these costs could either be shared or borne entirely by reprocessing.) The waste treatment category includes waste processing and spent fuel packaging. The waste transportation category includes transport of packaged spent fuel and treated TRU wastes. Packaged spent fuel storage is included under the category of interim storage. Interim storage also includes storage of processed wastes waiting for repository availability and storage of PuO_2 in the uranium-only recycle case in which plutonium is stored.

Three-fourths of the unpackaged spent fuel storage requirements are assumed to be provided by the nuclear power plant basins at an average cost of $6/kg HM-yr. The other one-fourth is provided by ISFSFs at a cost of $14/kg HM-yr for 6-yr lag storage or $9/kg HM-yr for extended storage beyond 6 yrs. Packaged spent fuel storage is provided by dry caisson facilities at a cost of $22/kg HM. All other predisposal unit costs were summarized in Table 3.1.5. Final repository costs are based on a salt formation repository as summarized in Table 3.1.28. All unit costs except spent fuel storage in nuclear power plant basins, which is based on data from NUREG-0404,(20) were developed specifically for this Statement. Further information on the unit costs can be found in Appendices K, L and M and in DOE/ET-0028.

Compensating cost differences result in little variation among cases in the total system costs except for the Deferred Decision to Recycle case, where spent fuel storage costs are substantially higher than for any other case. Final repository costs are about the same in all cases and account for about 30% of the total cost except for the Deferred Decision to Recycle case where it accounts for only 20%. The total uncertainty in all systems cost is about ±35%.

The same cost items for each case but "present worthed" to 1978 at a 7% discount rate are shown in Table 3.1.90.* The relationship of the individual cost components to the totals is generally about the same as in the undiscounted table. The early costs, such as spent fuel storage and waste treatment, however, are increased in importance (i.e., proportion of the total) while the later costs, such as decommissioning and final repository costs, are somewhat less important. In the Deferred Decision to Recycle case the repository costs are delayed the most because reprocessing does not start until 2010. In this case final repository costs are only 8% of the total.

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* Present worth discounting is a method of allowing for the time value of money. The present worth may be thought of as a present sum of money equivalent to a specified future payment or receipt or to a series of future payments or receipts. The present worth of a series of payments is obtained by summing the product of each annual payment times the quantity

$$\frac{i}{(1 + i)^n}$$

where i equals the interest rate or discount rate and n is the number of years from the present to the time of the payment.

TABLE 3.1.89. Total-System Cumulative Waste Management Cost, ($Billions 1978)

Case Description	Spent Fuel Storage	Spent Fuel Trans.	Waste Treatment	Waste Trans.	Interim Storage	FRP MOX-FFP Decomm.	Final[a] Repository	TOTAL[b]
1-Once-Through Cycle[c]	18.2	7.3	6.9	12.2	0	--	19.7	64.3
2A-U-Only Recycle Pu in SHLW(c)	5.7	7.3	27.9	3.6	0.1	0.4	21.9	66.5
2B-U-Only Recycle Pu Stored[c]	5.7	7.3	27.6	3.9	8.8	0.4	16.3	70.0
3A-U & Pu Recycle[c]	5.7	7.3	28.1	3.6	0.1	0.4	19.7	63.8
			Delayed Repository Cases[d]					
4A-Once-Through Cycle	18.2	7.3	6.9	12.2	1.1	--	20.3	65.4
3B-U & Pu Recycle	5.7	7.3	28.2	3.9	1.6	0.4	18.8	65.8
			Deferred Fuel Cycle Decision[e]					
4A-Once-Through Cycle	18.2	7.3	6.9	12.2	1.1	--	20.3	66.0
4B-U & Pu Recycle[e]	25.8	8.0	30.0	8.7	3.6	0.3	17.6	94.0

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a. Salt formation repository
b. The uncertainty in all total costs is approximately ±35%
c. Repository available in 1985
d. Repository available in 2000
e. Decision in year 2000
f. Reprocessing starts in 2010

TABLE 3.1.90. Present Worth Total-System Cumulative Waste Management Costs With 7% Discount Rate, ($Billions 1978)

Case Description	Spent Fuel Storage	Spent Fuel Trans.	Waste Treatment	Waste Trans.	Interim Storage	FRP MOX-FFP Decomm.	Final[a] Repository	TOTAL[b]
Once-Through Cycle[c]	2.5	0.8	0.7	1.3	0	--	2.1	7.3
U-Only Recycle Pu in SHLW[c]	0.9	1.0	3.7	0.4	0.1	0.01	2.5	8.5
U-Only Recycle Pu Stored[c]	0.9	1.0	3.7	0.5	1.2	0.01	1.9	9.1
U & Pu Recycle[c]	0.9	1.0	3.7	0.4	0.1	0.01	2.0	8.1
			Delayed Repository Cases[d]					
Once-Through Cycle	2.5	0.8	0.7	0.9	0.4	--	1.6	6.9
U & Pu Recycle	0.9	1.0	3.7	0.3	0.5	0.01	1.5	8.0
			Deferred Fuel Cycle Decision[e]					
Once-Through Cycle	2.5	0.8	0.7	0.9	0.4	--	1.6	6.9
U & Pu Recycle[f]	2.7	0.8	1.5	0.3	0.7	0.002	0.5	6.6

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a. Salt formation repository
b. The uncertainty in all total costs is approximately ±35%.
c. Repository available in 1985
d. Repository available in 2000
e. Decision in year 2000
f. Reprocessing starts in 2010.

Total system unit costs are presented in Table 3.1.91 for undiscounted costs and costs discounted at 7% and 10%. These unit costs are calculated using the relationship.

Three different interest or discount rates are used in the waste management system cost analysis. Because all values in the costs analysis are in 1978 constant dollars, the rates are intended to represent constant dollar or "real" interest rates. The rates are based on recent average rates after consideration of the effects of inflation and risk premiums suitable for investments in nuclear power waste management facilities. The three rates are:

1. Cost of money to the private fuel cycle industry, 10 ±4%. This rate was used in development of unit costs for waste treatment, transportation, and some storage facilities.
2. Cost of money to the Federal Government, 7 +3-7%. This rate was used to develop the unit cost for a final repository and some storage facilities.
3. Cost of money to the electric utility industry. This rate was used to calculate the waste management equivalent power cost and equivalent fuel cost. Costs are assumed to be recovered from the consumers when the electricity is generated. Costs to the utility are not incurred, however, until later, and the money collected at the time of power sales can earn a return for the utility, thus reducing power costs. The appropriate interest or discount rate to be used here is the average real return to the utility after inflation and excluding any additional risk premium. This rate is believed to lie between 0 and 7%, but costs are also calculated using a 10% rate.

The uncertainty range in these discount rates was factored into the uncertainty range estimates for the individual unit cost components. For a further discussion of the derivation of these interest rates see Section 3.8 of DOE/ET-0028.

Figure 3.1.18 schematically illustrates the relationship between the cash flow of the individual waste management system components and the discounting procedures. There are two similar but distinctly different applications of discounting techniques used in the development of the electric power cost equivalent of waste management costs. First a present worth levelizing technique is used to develop unit costs, i.e., cost per unit of spent fuel, for each waste management function. Second, a separate present worth levelizing technique is used to convert waste management costs to equivalent electric power costs.

The boxes in the lower part of Figure 3.1.18 illustrate the functions that make up the waste management system costs. The additional detail under the treatment unit costs box indicate the flow of dollars and materials that are factored into the development of unit costs. For any single waste management function all of the cash flows are present worthed to a common starting point. The levelized unit cost for that function is then calculated by the relationship:

$$\frac{\text{Sum of present worth costs}}{\text{Sum of present worth throughput}} = \text{Unit cost.}$$

The unit cost developed by this procedure represents the single charge that can be assessed for the waste management function that will recover all expenditures plus a return (the discount rate) on any unrecovered investment during the life of the facility. The sum of all of the separate waste management system unit costs represents the total waste management system unit costs.

TABLE 3.1.91. Total-System Unit Costs for Waste Management,[a, b] (Mid-1978 Dollars)

Case Description	Undiscounted $/kg HM	Undiscounted Mills/kWh	7% Discount Mills/kWh	10% Discount Mills/kWh
1-Once-Through Cycle[c]	169	0.72	0.45	0.38
2A-U-Only Recycle Pu in SHLW[c]	176	0.76	0.52	0.45
2B-U-Only Recycle Pu Stored[c]	184	0.79	0.56	0.49
3A-U & Pu Recycle[c]	168	0.72	0.50	0.44
Delayed Repository Cases[d]				
4A-Once-Through	172	0.74	0.42	0.34
3B-U & Pu Recycle	173	0.74	0.49	0.42
Deferred Fuel Cycle Decision[e]				
4A-Once-Through Cycle	172	0.74	0.42	0.34
4B-U & Pu Recycle[f]	247	1.06	0.40	0.30

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a. The uncertainty in all unit costs is approximately ±35%.
b. Salt formation repository
c. Repository available in 1985
d. Repository available in 2000
e. Decision in year 2000
f. Reprocessing starts in 2010.

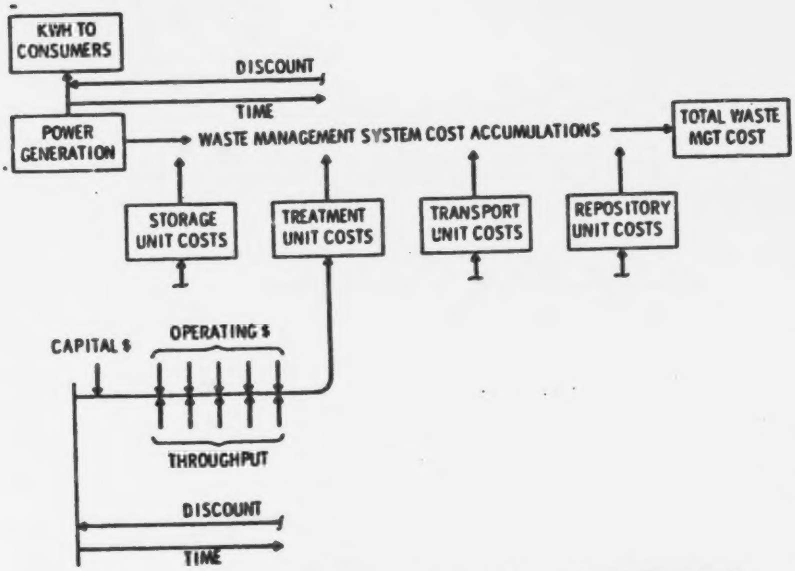
KWH TO CONSUMERS
DISCOUNT
TIME
POWER GENERATION
WASTE MANAGEMENT SYSTEM COST ACCUMULATIONS
TOTAL WASTE MGT COST
STORAGE UNIT COSTS
TREATMENT UNIT COSTS
TRANSPORT UNIT COSTS
REPOSITORY UNIT COSTS
CAPITAL $
OPERATING $
THROUGHPUT
DISCOUNT
TIME

FIGURE 3.1.18. Time and Discounting Relationships of Waste Management Functions of Cost

The accumulation of the waste management costs over a period of time following generation of power is also illustrated in Figure 3.1.18. It is assumed that all waste management costs, whether the services are provided by private industry or by the government, will be borne by the consumers of the electric energy generated by the nuclear power facility. Thus the waste management costs will be reflected as an increase in cost of power. The equivalent power costs of waste management can be obtained by discounting the costs of the individual waste management functions to the time of power generation, summing them all and dividing by the kilowatt hours of electric energy produced during the generation of waste. In other words, money is collected from the rate payers to cover the cost of waste management at the time the electricity is generated. The amount collected is somewhat less, depending on the discount rate, than the cost of waste management will be when it is actually incurred. This allows the utility to earn a return on this money during this period so that a sufficient fund accumulates to pay for the waste management costs at the time the costs are incurred. At any interest rate (discount rate) greater than 0%, fewer dollars need be collected from the rate payers than will be required to pay later waste management costs at the time they are incurred. The higher the utility discount rate, the lower the waste management costs become. The most important conclusions to be drawn from these data are that 1) there are only small differences between the waste management costs for all four basic fuel cycles (less than 0.1 mill/kwh), and 2) the relationships are not significantly altered by variation in the discount rate over the 0% to 7% range.

The same conclusions hold when comparing the effect of delayed repository availability on the once-through and reprocessing cycle costs. However, in the case of a deferred decision on choice of fuel cycles, although there is little difference at a 7% discount rate, there is a significant cost increase at a 0% rate for a deferred decision to reprocess.

Table 3.1.92 compares the effect of repository media choice on unit power cost for waste management for three fuel cycles. At a 7% or 10% discount rate the choice of media produces no more than a 0.1 mill/kWh change in costs. At a 0% rate the difference is as large as 0.2 mills/kWh. Considering that repository costs account for about 30% of the total cost with an uncertainty of ±50%, the total waste management costs are not likely to change more than 0.1 mill/kWh as repository designs are optimized and costs estimates are refined. Compared to total fuel cycle costs on the order of 6 mills/kWh, these results indicate that selection of geologic media will have little impact on the cost of nuclear power.

Costs were calculated for the low-growth nuclear power projection for the once-through and U & Pu Recycle cases to determine the effect of growth projection on waste management costs. The results of these calculations are presented in Table 3.1.93. Total waste management costs are reduced in proportion to the total energy produced, i.e., approximately 63% of the reference growth case. The present worth cumulative costs for the low-growth case are somewhat higher than 63% of the reference case because waste management functions are skewed relatively more toward the early years in the low-growth case and this results in, relatively, less discounting. The total system unit costs are about the same in the low-growth case as in the reference case. With any discount rate other than 0% there can be modest variations in the unit costs with any growth projection, depending on the rate the fuel is processed through the system relative to the power generation.

TABLE 3.1.92. Effect of Geologic Media on Unit Power Cost for Waste Management,[a] mills/kWh (Mid-1978 Dollars)

	0% Discount Rate			
	Salt	Granite	Shale	Basalt
Once-Through Cycle	0.72	0.84	0.74	0.88
U-Only Recycle Pu in SHLW	0.76	0.89	0.88	0.96
U & Pu Recycle	0.72	0.89	0.88	0.96
	7% Discount Rate			
	Salt	Granite	Shale	Basalt
Once-Through Cycle	0.45	0.52	0.45	0.54
U-Only Recycle Pu in SHLW	0.52	0.59	0.59	0.64
U & Pu Recycle	0.50	0.59	0.59	0.64
	10% Discount Rate			
	Salt	Granite	Shale	Basalt
Once-Through Cycle	0.38	0.42	0.39	0.44
U-Only Recycle Pu in SHLW	0.45	0.51	0.51	0.55
U & Pu Recycle	0.44	0.51	0.52	0.55

TABLE 3.1.93. Waste Management Costs for Low-Growth System, 1978 Dollars

Case Description	Spent Fuel Storage	Spent Fuel Trans.	Waste Treatment	Waste Trans.	Interim Storage	FRP MOX-FFP Decomm.	Final[a] Repository	TOTAL[b]
	Cumulative Cost, ($ Billions)							
Once-Through Cycle[c]	11.7	4.6	4.4	7.8	0	0	12.5	41.1
U & Pu Recycle[c]	4.5	4.6	17.5	2.3	0.1	0.4	11.7	41.1
	Present Worth Cumulative Costs, 7% Discount Rate, ($ Billions)							
Once-Through Cycle[c]	1.9	0.6	0.5	0.9	0	0	1.4	5.3
U & Pu Recycle[c]	0.8	0.7	2.4	0.3	--	--	1.6	5.8

Total System Unit Costs,[a]

	Undiscounted		7% Discount	10% Discount
	$/kg HM	Mills/kWh	Mills/kWh	Mills/kWh
Once-Through Cycle[c]	170	0.72	0.45	0.38
U & Pu Recycle[c]	170	0.72	0.48	0.42

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a. Salt formation repository
b. The uncertainty in all total costs is approximately ±35%
c. Repository available in 1985.

The uncertainty in total system costs cited here is estimated to be on the order of ±35%. This estimate considers not only the uncertainty in individual facility cost estimates but also the cost of money uncertainty and the inherent uncertainties regarding spent fuel storage methods and required shipping distances.

The Department of Energy has recently published preliminary estimates of proposed charges for spent fuel storage and disposal services.(21) A detailed comparison of costs developed in that study with those developed for this Statement has not been carried out. However, the methodologies and basic assumptions are compatible. The boundaries of the systems that are analyzed are quite different and few direct cost comparisons can be made. Where comparisons are possible, costs are comparable and within the uncertainty ranges identified here.

Attachment B

EXCERPT FROM DOE/EIS-0046-D-Volume 2

DRAFT ENVIRONMENTAL IMPACT STATEMENT

MANAGEMENT OF COMMERCIALLY GENERATED RADIOACTIVE WASTE

April 1979

SPENT FUEL STORAGE

When spent nuclear power plant fuel elements are discharged they are stored initially in an on-site water basin. In some cases spent fuel has been shipped offsite for storage. At this time government policy does not allow the reprocessing of nuclear fuels for plutonium and uranium recovery, and no decision has been made as to whether the fuels should be disposed of as a radioactive waste. Until a resolution is made as to the disposition of the fuel, it is necessary to safely store the spent fuel. Methods for short-term (up to 10 to 15 years) and long-term (up to 100 years) interim storage of spent power reactor fuels are discussed here. The method selected for short-term storage is storage of unpackaged fuel in water basins. Long-term storage of packaged fuel in water basins, air-cooled vaults, dry caissons, and surface storage casks is also described.

WATER BASIN STORAGE OF UNPACKAGED SPENT FUEL

The storage of spent power reactor fuel is an established technology that has been successfully in use for about 20 years, when the first power reactor began discharging fuel. Since that time spent fuel has been safely and successfully stored in water basins without significant environmental problems.

Since this concept is available technology now in use, it was selected as the short-term spent fuel storage concept for this statement.

Fuel is shipped in a shipping cask by truck or railroad to an independent spent fuel storage facility (ISFSF). There the spent fuel is unloaded into stainless steel baskets in the cask unloading pool. These baskets are designed to provide positive assurance of criticality safety. The baskets are moved by crane to pool storage positions. Failed fuel assemblies are overpacked prior to storage. Radionuclide decay heat from the fuel is dissipated into the pool water. The pool water is cooled by circulating through a water-cooled heat exchanger. Heat removed by the exchanger coolant is rejected to the atmosphere by a closed system cooling tower. The water quality in the pool is maintained by filtering and ion exchange processing. Radioactive wastes generated at the ISFSF are treated at an onsite facility. The reference ISFSF has the capacity to store 3000 MTHM of irradiated fuel, comprised of about 4000 PWR and 6000 BWR assemblies. The ISFSF provides for fuel storage only; it is equipped with two rail cask handling stations, each of which can handle receipts or shipments of up to 500 MTHM per year.

Main areas of the ISFSF plant include the cask and fuel handling area, the storage basins and the waste and water treatment area. Support, utility and service facilities are also provided within a secured area. A plot plan of the ISFSF is shown in Figure M.22.

The fuel storage basin (FSB) is divided into six individual storage pools with 500 MTHM storage capacity each, as shown in Figure M.23. Gates permit each pool area to be isolated. Major equipment and systems include:

- fuel basket handling and storage crane
- fuel storage basket and racks
- basin water cooling
- basin water cleanup and treatment.

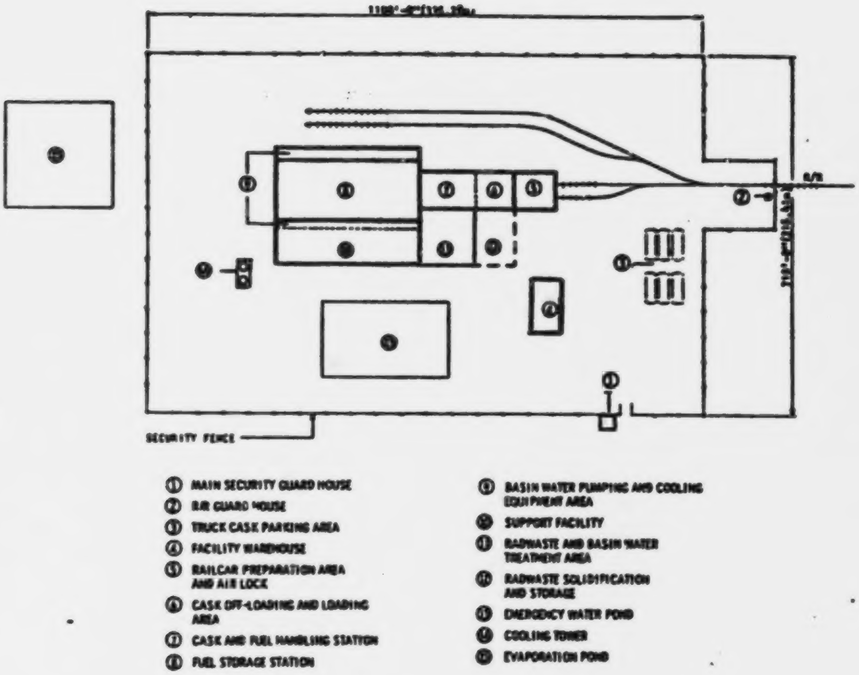
R/R
SECURITY FENCE
① MAIN SECURITY GUARD HOUSE
② R/R GUARD HOUSE
③ TRUCK CASK PARKING AREA
④ FACILITY WAREHOUSE
⑤ RAILCAR PREPARATION AREA AND AIR LOCK
⑥ CASK OFF-LOADING AND LOADING AREA
⑦ CASK AND FUEL HANDLING STATION
⑧ FUEL STORAGE STATION
⑨ BASIN WATER PUMPING AND COOLING EQUIPMENT AREA
⑩ SUPPORT FACILITY
⑪ RADWASTE AND BASIN WATER TREATMENT AREA
⑫ RADWASTE SOLIDIFICATION AND STORAGE
⑬ EMERGENCY WATER POND
⑭ COOLING TOWER
⑮ EVAPORATION POND

FIGURE M.22. Plot Plan for Independent Spent Fuel Storage Facility

Costs of Water Basin Storage of Spent Fuel

Capital, operating, and levelized unit costs of storing unpackaged spent fuel in the described water basin are given in Table M.39 for privately and Federally owned basins. The unit cost calculation assumes that 450 MT of fuel is received each year. Beginning in the seventh year, 6-year-stored fuel is shipped out at the same rate that new fuel is received. The facility is assumed to operate at 2700 MT or 90% of capacity, with the other 300 MT used to accommodate inventory surges. For the cost calculations, the facility is assumed to cycle spent fuel in this fashion for 10 more years. At the end of this time, no new fuel is received and the facility works down its storage inventory for the final 6 years, and is then decommissioned.

TABLE M.39. Cost Summary for Storing Unpackaged Spent Fuel in an ISFSF, mid-1978 $1000s

	Privately Owned	Federally Owned
Construction	180,600	180,600
Owner's cost	53,400	53,400
Total capital cost	233,400	234,000
Operation and maintenance/yr	5,000	5,000
Levelized Unit Cost $/kg HM stored	132[a] ±35%	67[b] ±35% (39-77)
$/kg HM-yr	22.0	11.10

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a. Ten percent cost of capital.
b. Seven percent cost of capital, with cost range in parentheses reflecting a cost of capital range of 0 to 10%.

The table indicates that the unit cost of storing fuel in a privately owned basin is twice as much as storing it in a Federally owned basin. The main component of the unit costs here is the capital charge, and the difference in cost is due to the required Federal and State tax costs for the private facility and a slightly higher cost of capital. The effect of a range of 0 to 10% on the cost of capital to the Federal government is shown in parentheses under the unit cost.

It is also conceivable that ISFSFs might be used for indefinite extended storage of spent fuel pending a decision for disposal or reprocessing. Table M.40 illustrates the cost for this application. It was assumed that the basin would be filled at 500 MT/yr over a 6-year period, and that it would hold the fuel for 10 years and then be emptied over a 6-year period. A decommissioning cost is incurred in the last year. Both private and Federal government ownership is illustrated. The unit cost would increase only slightly for longer storage periods since over 95% of the unit cost is due to the capital cost and the one-time use of the facility

TABLE M.40. Cost of One-Time-Use Storage of Spent Fuel in ISFSF

	Privately Owned	Federally Owned
Annual operating cost, $/yr		
Loading or unloading	4.1×10^6	4.1×10^6
Holding	2.9×10^6	2.9×10^6
Levelized unit cost, $/kg HM	210 ±35%	120 ±35%
Cost range for 0-10% cost of capital		(94 - 123)

This water basin storage concept is designed for holding the spent fuel a few years while radioactive decay takes place. It is designed for continuous receiving and shipping operations The cost for indefinite extended storage could probably be reduced substantially by designing a facility that could be expanded to larger capacities in modular increments. A preliminary estimate based on costs of modular facility similar to that described for packaged spent fuel on page M.69 indicates costs of approximately $70/kg and $47/kg for private and federal facilities respectively.

MODIFIED WATER BASIN STORAGE OF UNPACKAGED SPENT FUEL

The reference modified ISFSF for storage of unpackaged spent fuel has a larger fuel receiving capacity and a slightly larger fuel storage capacity than the ISFSF described earlier. It also has provision for transfer of fuel to an adjacent fuel packaging facility (FPF). The modified facility has a receiving capacity of 2000 MTHM/yr, which matches the FPF capacity, and a fuel storage capacity of 3050 MTHM. A plot plan of the modified ISFSF is shown in Figure M.24. The storage facility layout is shown in Figure M.25.

After being unloaded from a shipping cask, fuel may be transferred directly to either the FPF, to surge storage prior to movement to the FPF, or to interim storage, which is the same operation as in the ISFSF. A 50-MTHM surge storage pool is located in the fuel storage area and operated in the same fashion as the other storage pools. To transfer fuel from the cask unloading pool(s) or the surge storage pool to the FPF, loaded fuel baskets are placed on a dolly and moved through a canal to one of three fuel unloading ports in the FPF. At the unloading port a plug is removed from the floor in the FPF receiving area and the fuel assemblies are lifted by crane from the basket to a storage rack within the cell. Other facility operations such as water treatment, fuel storage and ventilation are essentially the same as for the ISFSF described earlier.

Costs of Additional Receiving Capacity and Surge Storage for a Modified ISFSF

The incremental capital, operating and unit costs for increasing the fuel handling capacity of a spent fuel water basin from 1000 MT/yr to 2000 MT/yr is shown in Table M.41. This incremental cost is allocated to spent fuel packaging as an essential component of that operation.

TABLE M.41. Incremental Costs of an Additional 1000 MTHM Receiving Capacity at an ISFSF

	Privately Owned	Federally Owned
Construction, $1000s	20,900	20,900
Owner's cost, $1000s	7,100	7,100
Total capital cost, $1000s	28,000	28,000
Operation and maintenance, $1000s/yr	1,500	1,500
Levelized unit cost, $/kg HM	4.10	2.00
Allocated surge storage cost, $/kg	2.90	1.50
Total unit cost, $/kg	7.00 ±40%	3.50 ±35%

The unit cost calculation for fuel receiving includes a cost allocation of 350 MT of ISFSF storage for lag storage serving the packaging facility.

SPENT FUEL PACKAGING

Spent fuel assemblies are transferred from a modified ISFSF to an adjacent facility where they are packaged in carbon or stainless steel canisters prior to being moved to a long-term storage facility for packaged spent fuel. Most available spent fuel packaging technology has been developed for fuels other than LWR fuel. Such technology includes conceptual designs for packaging CANDU spent fuels, FFTF spent fuels, and packaging of solidified high-level waste. A facility for packaging and storing fuel from high-temperature gas-cooled reactors and from the nuclear rocket program has been constructed at the Idaho Chemical Processing Plant. The reference packaging facility selected here uses a composite of this development and design experience. In the reference facility, cleaned and dried fuel assemblies are individually packaged in metal containers which are then filled with helium and are seal welded. Figure M.26 shows the relationship between the reference spent fuel packaging facility and the modified independent spent fuel storage facility.

The fuel packaging facility (FPF) will receive fuel assemblies from the modified ISFSF via three water-filled transfer canals. After entry into the FPF, the assemblies are dried, placed in steel containers (canisters) that are then filled with helium and the canister caps are seal welded. These packaged assemblies are stored about 2 days and then inspected to ensure that the canisters are not leaking helium. The canisters then are either transferred to an adjacent facility for long-term storage or shipped to an offsite storage facility. Major process systems are remotely operated mechanical handling and welding operations. Failed fuel assemblies are sealed into canisters which, in turn, are doubly contained in steel overpacks closed and sealed by welding. All containers are evacuated and then backfilled with helium at 5 psig (0.34 atm). The FPF is designed to package 2000 MTHM/yr of fuel assemblies, in 300 operating days per year. The annual throughput is 2700 PWR assemblies and 4000 BWR assemblies. It is assumed that a maximum of 2% of the assemblies have failed rods, so that about two failed assemblies per week can be processed. The facility for receiving and storing empty canisters and overpacks provides space to receive, handle, inspect, repair, and store a 2-month canister and overpack inventory.

The FPF is arranged in three general fuel assembly handling areas: the spent fuel packaging area, the holding and testing area, and the shipping and receiving area. These areas are shown on the FPF plan, Figure M.27.

The fuel packaging area consists of three cells, one of which is used to package failed fuel. Equipment for fuel drying, fuel canister and overpack handling, helium addition to canister, and canister seal welding is provided in the cells. Each cell is connected to the ISFSF by a water-filled spent fuel transfer canal. The main feature of the holding and testing area is the holding cell. It is connected to the packaging cells by transfer tunnels, to the adjacent loadout cell by a transfer tunnel, and/or to an adjacent long-term storage facility by a transfer tunnel or canal. Cell equipment is included for monitoring fuel package containment. In the receiving area the canisters and casks are received, inspected, and stored for use. The offsite loading area includes the shipping cask handling areas, the shipping cask loading cell, and a transfer tunnel from the holding area to the cask loading cell.

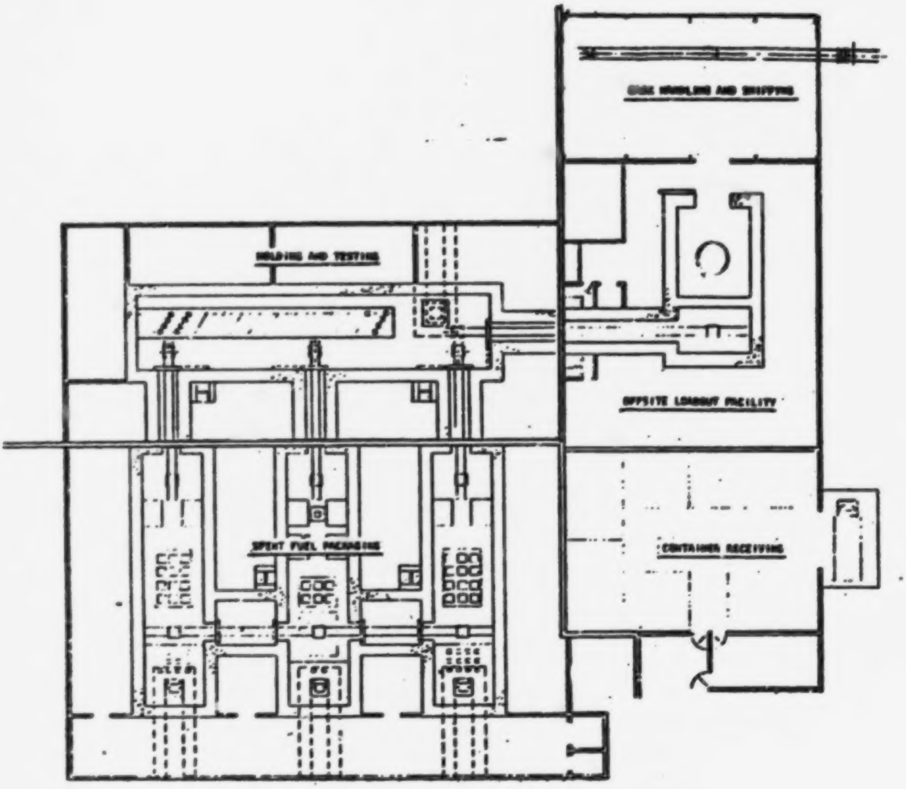
CASK HANDLING AND SHIPPING
HOLDING AND TESTING
OFFSITE LOADOUT FACILITY
SPENT FUEL PACKAGING
CONTAINER RECEIVING

FIGURE M.27. Spent Fuel Packaging Facility Plan

Costs of Spent Fuel Packaging

Capital, operating, and total unit costs for the reference spent fuel packaging facility are shown in Table M.42. Costs are shown for both private and Federal ownership. The effect of costs of capital assumptions for Federal ownership is shown in parentheses. The levelized cost calculation assumes a 15-year period of operation with a 2-year startup to full capacity. A decommissioning cost of 10% of the initial capital cost is assigned in the last year. The cost of fuel receiving based on the incremental costs of the modified ISFSF that was previously discussed is included in the total unit costs.

TABLE M.42. Spent Fuel Packaging Facility Costs

	Privately Owned	Federally Owned(b)
Construction, $1000s	98,000	98,000
Owner's costs, $1000s	29,000	29,000
Total capital costs, $1000s	127,000	127,000
Operating and maintenance cost, $1000/yr(a)	2,900	2,900
Carbon steel canister cost, $1000/yr(a)	10,400	10,400
Levelized unit cost, $/kg HM packaged	22.60	14.70
Fuel receiving cost, $/kg HM	7.00	3.50
Total levelized unit cost of packaging, $/kg HM	29.60 ±30%	18.20 ±25%
Cost range for 0-10% costs of capital		(13.30 - 21.00)

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a. At a packaging rate of 2000 MT/yr
b. Cost of capital of 7%

The reference facility design for the packaging and storage facilities uses rectangular canisters and overpacks. If round canisters were used, the per canister costs would drop about 27% or $2.8 million annually, decreasing the unit cost by about $1/kg HM. However, if round canisters were used the facility configurations would change substantially. Storage volume requirements and hence capital costs would probably increase. Also fewer packaged fuel canisters could be transported in a spent fuel cask, thus increasing the packaged spent fuel transportation cost.

INDEPENDENT SPENT FUEL RECEIVING FACILITY

After fuel has been packaged for extended storage it could be shipped to a separate site for storage. In this case an independent fuel receiving facility (IFRF) is required to receive the packaged spent fuel and to transfer it to the storage facility. The IFRF will provide the same appropriate services and utilities for the onsite fuel storage facilities as does the ISFSF except it will not provide for radioactive waste treatment. For the IFRF any radioactive wastes generated will be packaged and shipped offsite. The facilities and operations used for the IFRF have been based on the same concepts used for receiving packaged high-level waste and shipping packaged fuel in the FPF.

The IFRF receives packaged LWR spent fuel in rail car shipping casks, unloads these casks and removes the packaged spent fuel, examines and tests the integrity of the containers and, if they are satisfactory, loads the packaged spent fuel into a conveyance for transfer to the associated storage facility. The IFRF overpacks failed containers and filters the cell ventilation air prior to release to the atmosphere through the stack. The IFRF provides common facilities that are shared with the associated storage facility for such services as utilities, warehousing, offices, laboratories, operating personnel change areas, health physics, and maintenance shops.

The IFRF has the capacity to receive and transfer packaged spent fuel to the associated storage facility at a rate of 2000 MTHM/yr on the basis of 300 operating days per year. All spent LWR fuel is received in rail casks that transport either 7 packaged PWR fuel assemblies or 17 packaged BWR fuel assemblies. The IFRF is also capable of overpacking up to 2% of the spent fuel packages received.

The IFRF consists of the major fuel receiving and support facilities building, personnel support facilities, and service areas. A plot plan is shown in Figure M.28. Details are shown in Figure M.29. In the rail cask receiving, handling, and unloading area, two parallel rail car unloading tracks are provided, served by a 125-ton overhead bridge crane. Casks are transferred via a motor-driven cask carriage through an underground air tunnel. In the packaged spent fuel receiving and transfer area, all packaged spent fuel is handled remotely, using an overhead bridge crane, power and slave manipulators, and shielded viewing windows. Decontamination pits and cooling wells are provided to assure complete examination and conditioning before the packaged fuel is released. Any packaged spent fuel in faulty containers is placed through a hatch opening into a motorized carrier and transferred to the overpacking cell. In the spent fuel overpacking area, equipment items include the overhead bridge crane, storage racks for the packaged spent fuel before and after overpacking, a decontamination station, and remote welding and weld-test equipment.

Costs of an Independent Spent Fuel Receiving Facility

Capital, operating and levelized unit costs for an independent spent fuel receiving facility are listed in Table M.43. The scenario for the levelized unit cost calculation assumes an 11-year period of operation (including a 2-year startup phase) to fill one 20,000-MT storage facility. During the next 10-year period the facility is assumed to act as a shipping facility to unload the storage facility. Following unloading, the facility is decommissioned. Decommissioning costs are estimated at 10% of initial capital cost.

TABLE M.43. Cost Summary for an Independent Spent Fuel Receiving Facility

Construction	71,000
Owner's costs	21,400
Total capital costs	92,400
Average operation and maintenance/yr	1,500
Levelized unit cost, $/kg HM received, (7% cost of capital)	9.50 ±30%
Range for costs of capital from 0 - 10%, $/kg HM	(8.10 - 10.50)

WATER BASIN STORAGE OF PACKAGED SPENT FUEL

The concept of storing packaged fuel in a water basin is the same as for unpackaged fuel except that the fuel is placed in a stainless steel canister which provides additional fuel protection, radionuclide containment barriers, and contamination control. The packaged fuel is stored under water in a reinforced concrete pool lined with stainless steel. The water provides shielding for operating personnel and a medium by which the radionuclide decay heat can be removed.

The storage of packaged fuel has not been practiced routinely. However, fuel has been overpacked and stored when leaking fuel elements have been detected. The technology is regarded to be well established based on water basin storage of unpackaged fuel.

Packaged spent fuel is transferred from a fuel packaging facility (FPF) or an independent fuel receiving facility (IFRF) to an associated water basin for storing packaged fuel (WBS-PF). The packaged fuel is moved in a basket containing four PWR or nine BWR packaged assemblies through a water-filled canal. The fuel is moved to its storage position in the water basin by a crane. Demineralized basin water is circulated within the water basin storage building through a heat exchanger, a filter, and an ion exchanger for removal of heat and radioactive contamination. Cooling towers are provided as a secondary cooling water circuit for heat dissipation.

Spent LWR fuel assemblies, packaged in stainless steel containers, are received at a rate of 2,000 MTHM/yr. The assumed annual storage rate of spent fuel is 670 PWR baskets containing 2,680 PWR assemblies in canisters, of which a maximum of 55 may also be overpacked; plus 445 BWR baskets containing 4,005 BWR assemblies in canisters, of which a maximum of 80 may be overpacked. Storage basin modules of 2,000 MTHM capacity are added as needed up to a total capacity of 20,000 MTHM.

The facility does not employ any major chemical processes. It shares common use of ISFSF or IFRF utilities and services and support facilities, such as personnel areas, laboratories, health physics, warehousing, shops, and maintenance. The facility includes cooling towers, a control house, the ventilation filter/blower building and stack. The WBS-PF facilities include a central water canal extending from the FPF or IFRF. The 10 water storage basins are located adjacent to this canal, five on each side. Packaged spent fuel is moved under water from the canal into each storage basin through gateway openings in the canal wall.

Figure M.30 shows the typical arrangement of the 2,000 MTHM water storage basin and associated facilities. Each basin contains a system of single-tiered, side-entering stainless steel storage racks for 1120 storage baskets. The racks consist of 16 open rows running the length of the basin, through which the baskets are moved one at a time. The water basin storage arrangement does not provide transfer aisles. Therefore, retrievability within each of the 16 rows is limited to a first-in, last-out mode. However, rows can be selected on a first-in, first-out basis. Each basin module is covered by an insulated building that houses a crane for handling the storage baskets and the basin water cooling and treating equipment. The water is cooled by rejecting heat to the atmosphere using a secondary heat exchanger and a cooling tower.

Costs of Water Basin Storage of Packaged Spent Fuel

Capital, operating, and levelized unit costs for water basin storage of packaged spent fuel are summarized in Table M.44. The capital costs are for a 20,000-MT facility consisting of ten 2000-MT modules. The costs of stainless steel storage racks for the full 20,000 MT of

TABLE M.44. Cost Summary for Water Basin Storage of Packaged Spent Fuel

Construction, $1000s	227,800
Owner's cost, $1000s	68,200
Total capital cost, $1000s	296,000
Stainless steel storage racks, $1000s	126,800
Incremental cost of stainless steel canisters, $1000s	263,000
Operation and maintenance, $1000s/yr	2,300
Levelized unit cost, $/kg HM stored (7% capital cost)	38.40 ±20%
Range for costs of capital from 0 to 10%, $/kg HM stored	(38.00 - 39.00)

spent fuel are a significant cost item and are shown separately. This method of storage would require packaging the spent fuel in stainless steel instead of carbon steel canisters. The incremental cost of doing this (above the cost of carbon steel canisters included in the packaging cost) for 20,000 MT of spent fuel is another significant cost item that is shown separately. These two items together account for more than half of the storage cost.

The reference facility design uses rectangular canisters and overpacks. If round canisters were used, the incremental per canister costs for stainless steel canisters would drop about 30% or $79 million for a 20,000-MT facility. This would decrease the unit cost by about $4.00/kg of heavy metal. However, if round canisters were used, the facility configurations would change substantially. Storage volume requirements and hence capital costs would probably increase. Also fewer packaged fuel canisters could by transported in a spent fuel cask, thus increasing the unit packaged spent fuel transportation cost.

The levelized cost calculation assumes Federal government ownership and a 2-year startup followed by 9 years of spent fuel receiving and storage at 2000 MT per year (one module per year) for a total storage accumulation of 20,000 MT. Following the last year of receiving, spent fuel is unloaded from the facility at the rate of 2000 MT/yr. If an extended storage period were assumed, the unit storage cost would change only slightly since most of the costs are facility and hardware costs. Following the last year of unloading, the facility is decommissioned. Decommissioning costs are estimated at 10% of initial capital cost. Variations in the cost of capital have only a small effect on the levelized unit cost because of the modular expansion schedule that spreads out the facility and hardware costs as the storage capacity is used; i.e., most of the costs are recovered the same year they are incurred.

AIR-COOLED VAULT STORAGE OF PACKAGED FUEL

In the air-cooled vault storage concept, spent fuel assemblies are packaged in carbon steel canisters and placed vertically in carbon steel sleeves. Cooling air enters the sleeves through side inlets in the structure and a bottom distribution plenum. The air passes upward through annuli formed by the storage units and sleeves. This concept uses the decay heat of the spent fuel and the engineered design of the vault to induce air flow by natural draft to maintain permissible temperatures. The heated air is discharged through a short exhaust port to the atmosphere. The structure will provide all requirements for biological shielding and protection from natural phenomena. This concept has never been used for fuel storage, but the technology is based on established engineering practice and related experience.

The reference facility receives through an air tunnel the packaged spent LWR fuel assemblies in racks of four PWR or nine BWR assemblies transported on a remotely operated track-mounted cart from an adjacent fuel packaging facility (FPF) or independent fuel receiving facility (IFRF). The fuel is picked up in a bottom loading cask supported by a self-propelled crane. The crane and cask are moved to an empty storage location where the packaged spent fuel is lowered into the carbon steel storage sleeves. Spent fuel packages are stored vertically and are bottom supported. A shielding plug is inserted after the spent fuel is in place. A system is provided to monitor the exit air for helium and fission products. A standby forced-air cooling system with provision to filter the exhaust air is also provided if airborne radioactivity is detected. The vault design provides for ready retrieval of the fuel packages at any time. Packaged assemblies are received from the adjacent facility at a maximum rate of 2000 MTHM/yr. The assumed annual storage rate of spent fuel is 2680 PWR assemblies and 4005 BWR assemblies packaged in canisters. Of these assemblies, a maximum of 55 PWR and 80 BWR doubly contained overpacks can be handled.

The storage vaults are modular units having a storage capacity of 2000 MTHM each. Up to nine additional modular units will be built as needed, to a total capacity of 20,000 MTHM. The air-cooled vault storage facility includes the transfer tunnel, the storage vaults, and emergency sand filters. Figure M.31 shows the arrangement of the storage vault modules. The transfer air tunnel and the air-cooled storage vault are massive reinforced concrete structures constructed to design basis earthquake and tornado standards which provide biological shielding from the radiation of the spent fuel. The top surface of the storage vault is about 0.3 m above grade, with the remainder of the vault buried in the earth.

ATTACHMENT C

EXCERPT FROM DOE/ET-0055

PRELIMINARY ESTIMATES OF THE CHARGE FOR SPENT-FUEL STORAGE AND DISPOSAL SERVICES

July 1978

2.3 Reference Case Results

Using the given assumptions, reference charges were calculated, as previously stated, by equating the present value of total system costs to the present value of total revenues over the campaign, using a 6.5% discount rate. The resulting charges reflect in 1978 dollars the amount due per kilogram of spent fuel transferred to the DOE. The charges quoted are those due at the time of transfer. The same charge applies to all transfers throughout the campaign period of 1983 through 2000. The charges are:

for disposal only	$117/kg heavy metal;
for storage and disposal	$232/kg heavy metal.

Table 5 shows how these values would change as a function of time, if payments were made in advance of transfer assuming a 6.5% discount rate. For example, if in 1978 a utility were to make a commitment to transfer in 1988 one annual discharge of spent fuel for disposal only, the charge would be $62 per kilogram ($117/kg discounted for 10 years). If the discharge were 25 metric tons, the total payment in 1978 would be $1.55 million. That payment would earn interest at the rate of 6.5% per year and would amount to $2.9 million at time of transfer in 1988. Adjustments for inflation would be made at that time and any

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*References (1) and (2).

TABLE 4

SUMMARY OF COST ASSUMPTIONS
(Millions of 1978 Dollars)

	Facility	Annual Operating Cost	Capital Cost	Other Cost
AFR	5,000 MTU* (2000 MTU/yr receipt rate)	6	200	20 (decommissioning)
	1,000 MTU expansion	-	20	-
Transportation	AFR to repository site	-	-	0.0315/MTU
Encapsulation Facility	6,000 MTU/yr receipt rate	21	350	0.004/canister
Geologic Repository	45,000 MTU (6000 MTU/yr receipt rate)	50	500	0.005/canister 200 (decommissioning)
Research and Development	Total through 1986	-	-	560
Government Overhead	Annual	13	-	-

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*MTU represents the quantity of uranium in metric tons contained in the fresh fuel elements prior to loading into a reactor. This is essentially the same as the quantity of heavy metal (uranium plus plutonium) contained in the same fuel elements after discharge from the reactor.

TABLE 5

Payment for Spent Fuel Storage and/or Disposal Charge if Payments are Made in Advance of Transfer

(6.5 percent per year discount rate)

Number of Years in Advance That Payment is Made	Fraction	Reference Case Disposal Only	Reference Case Storage and Disposal
0	1.00	117	232
1	.94	110	218
2	.88	103	205
3	.83	97	192
4	.78	91	180
5	.73	85	169
6	.69	80	159
7	.64	75	149
8	.60	71	140
9	.57	66	132
10	.53	62	124

additional payments would be due then. Similarly, payment in 1978 for storage and disposal with transfer in 1983 would be $169/kg ($232/kg discounted for 5 years). For a 25 metric ton discharge, the total payment in 1978 would be $4.22 million which would amount to $5.8 million in 1983 at time of transfer. Here again, adjustments for inflation would be due at time of transfer.

The elements of the reference case charge calculations are shown below. The actual costs for disposal are the same for all fuel. However, the encapsulation and repository costs are discounted for a greater number of years in the storage-and-disposal case than in the disposal only case. This accounts for the difference between $34 and $28 per kg for encapsulation and $51 and $42 per kg for the repository as explained in the Appendix. R&D costs and Government overhead costs are allocated equally to all customers. By definition of use-based charges, the AFR and transportation from AFR to repository are elements of the storage and disposal charge but not of the disposal only charge.

ELEMENTS OF CHARGE - REFERENCE CASE
($/kg Heavy Metal)

	Disposal Only	Storage and Disposal
AFR	0	104
Transportation	0	26
Encapsulation	34	28
Geologic Repository	51	42
R&D	26	26
Government Overhead	6	6
Total	117	232
Cost in mills/kw hr*	0.47	0.93

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*The conversion of the charge into mills/kw hr is dependent on the thermal efficiency of the nuclear power plant and the burnup of the fuel. The conversion factor used here ($250/kg = 1 mill/kw hr) is based on an average thermal efficiency of 34% and an average burnup level of 31,000 MWD_{th}/MTU. These represent average design levels for reactors currently being built. This would be added to the nuclear power electricity costs which are now about 40 mills per kilowatt hour to the consumer.

The reference case required 3,200 metric tons of AFR storage, filled the first geologic repository in the late 1990's, and introduced 12,000 metric tons of spent fuel into a second geologic repository. The AFR was unloaded in the early 1990's and reactor basin fuel inventories were gradually reduced so that by 2000 they retained five to six annual discharges. A total of 57,000 metric tons of spent fuel was loaded into the geologic repositories.

The method of charging employed here recovers full costs to the Government for the services provided. It is not a method of "indifference pricing" to the utilities. Each utility has its own unique spent fuel storage needs, capabilities and financial circumstances. The cost for providing interim storage for spent fuel elements at a particular reactor may be quite different from that element in the storage and disposal charge applicable to interim AFR storage. Even in cases where there is no difference, the transportation from AFR to repository in the storage and disposal charge has no counter-part for disposal only customers. Furthermore, the transfer of fuel directly to the repository rather than first to the AFR has the effect of delaying the cost of transportation from the reactor basin to the Government site, which could be a significant factor for some utilities. All of these factors would be important to utilities considering additional storage space. If, as a result of the lower charge, the request for disposal-only transfers, were to exceed the repository receipt rate, customers would have to be accepted on some priority basis.

APPENDIX - METHODOLOGY FOR CALCULATING CHARGE

Basic to the charge calculation methodology is the principle that the Government should be reimbursed over a reasonable period of time for all costs relevant to the services provided. This has been interpreted to mean that the present value of all applicable revenues must equal the present value of all relevant costs. Stated another way,

Discounted Costs = Discounted Revenues

All costs and revenues are expressed in constant dollars. Costs are recognized at the beginning of the year incurred. Revenues are recognized at the end of the year that spent fuel is received at a site designated by the Government. For the reference case in this analysis a campaign through year 2000 is taken as a reasonable period of time. The discount rate is constant throughout the period.

Since revenue is defined as charge multiplied by quantity and since the charge is defined to be a constant over the campaign period, discounted revenue can be expressed as,

Discounted Revenue = Charge x Discounted Quantity

As a result, the desired charge in terms of dollars per unit quantity can be calculated by the formula

$$\text{Charge} = \frac{\text{Discounted Cost}}{\text{Discounted Quantity}}$$

Discounted Quantity is determined by first projecting annual transfers of spent fuel to the designated site, then discounting them to the present year at the accepted Government discount rate, and finally summing the discounted quantities. This is expressed by the formula,

$$Q = \sum_{t=1}^{t=n} \frac{Q_t}{(1+r)^t},$$

where Q = sum of discounted quantity transfers

Q_t = transfers for year t

r = discount rate

t = year ($t=1$ represents present year)

n = last year of campaign

Discounted costs are determined by first projecting annual cash expenditures for capital and operating costs for each cost center including those dependent on material flows, then discounting them to the present year at the accepted rate, and finally summing the discounted annual costs by cost centers. This is expressed by the formula,

$$C_i = \sum_{t=1}^{t=n} \frac{C_{it}}{(1+r)^{t-1}},$$

where C_i = sum of discounted costs for cost center i,*

C_{it} = cash expenditure in year t for cost center i.

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*Cost centers are: 1. AFR; 2. transportation from AFR to repository; 3. encapsulation; 4. geologic repository; 5. R&D; 6. Government overhead.

BEST DOCUMENT AVAILABLE

Any unrecovered costs incurred prior to the campaign period (referred to elsewhere in the report as initial system value) are included as costs in the first year. The cash expenditures are those for managing the program during the period and include costs associated with managing all the spent fuel received during the period even those relevant costs incurred after the end of the period. Decontamination and decommissioning costs are included in the years following the last year of operation of the facility. If the facility is held open beyond the end of the campaign period, these costs are recognized in the last year of the campaign period, except that no such costs are recognized during the campaign period for the second repository. Any costs incurred during the period which are associated with the remaining value of capital facilities at the end of the period are accumulated as an ending system value and credited against the costs in the last year of the campaign.

Direct application of the methodology described constitutes a levelized charge, by which all customers are charged the same fee regardless of service rendered. The component of the charge associated with each cost center is calculated in terms of $ per kilogram by the formula,

$$P_i = C_i \,/\, Q,$$

where P_i is the charge component for cost center i.

The total charge in terms of $ per kilogram is the sum of the six cost center components.

$$P = \sum_{i=1}^{i=6} P_i,$$

where P = total charge

P_1 = AFR component of charge

P_2 = transportation component

P_3 = encapsulation component

P_4 = geologic repository component

P_5 = R&D component

P_6 = Government overhead component

For use-based charges, the costs associated with each cost center are allocated to the appropriate customers in proportion to their use. All costs for the AFR and the transportation from the AFR to the repository are charged to the users of those services. The encapsulation and repository costs are allocated according to use and time of payment. R&D costs and Government overhead are shared equally by all customers.

The discounted quantities transferred to the AFR for storage and disposal and directly to the repository for disposal only are calculated according to the formulas,

$$Q_A = \sum_{t=1}^{t=n} \frac{Q_{At}}{(1+r)^t} ,$$

$$Q_D = \sum_{t=1}^{t=n} \frac{Q_{Dt}}{(1+r)^t} ,$$

where Q_A = sum of discounted transfers to the AFR

Q_D = sum of discounted transfers for disposal only

Q_{At} = receipts at AFR during year t

Q_{Dt} = disposal only receipts at repository during year t

Note that $Q_A + Q_D = Q$.

The components of the charge for the AFR (P_1) and for transportation (P_2) chargeable to the users of those services under the use-based philosophy are, therefore,

$$P_1 = C_1 / Q_A \ ,$$
$$P_2 = C_2 / Q_A \ .$$

The components of the charge for those services to the disposal only customers are zero.

In order to apportion the costs of encapsulation and the repository facility to the two types of customers and to account for earlier payments made by storage and disposal customers, the quantities transferred from the AFR to the repository were determined and discounted to the present year. Transfer from AFR to repository was assumed to take place at the beginning of each year, which is consistent with the assumption that costs would be incurred at the beginning of each year. The formula expressing those transfers is

$$Q_T = \sum_{t=1}^{t=n} \frac{Q_{Tt}}{(1+r)^{t-1}} ,$$

where Q_T = sum of discounted transfers from AFR to repository site

Q_{Tt} = transfers from AFR to repository during year t.

The ratio Q_T/Q_A represents the discounting factor for the payment of encapsulation and repository charges in advance of receipt of those services. It is expressed by the formula,

$$\frac{Q_T}{Q_A} = \frac{1}{(1+r)^s}$$

where s = on the average, the number of years that transfers for
storage and disposal remain in the AFR.

The components of the charge for those services (P_3, P_4) to each type of customer are calculated according to the formulas given below.

For disposal only,

$$P_{3(D)} = C_3 \times \left(\frac{Q_D}{Q_T + Q_D}\right) \Big/ Q_D = C_3 / (Q_T + Q_D)$$

$$P_{4(D)} = C_4 \times \left(\frac{Q_D}{Q_T + Q_D}\right) \Big/ Q_D = C_4 / (Q_T + Q_D)$$

For storage and disposal,

$$P_{3(A)} = C_3 \times \left(\frac{Q_T}{Q_T + Q_D}\right) \Big/ Q_A = \left[C_3 / (Q_T + Q_D)\right] \times \frac{Q_T}{Q_A}$$

$$P_{4(A)} = C_4 \times \left(\frac{Q_T}{Q_T + Q_D}\right) \Big/ Q_A = \left[C_4 / (Q_T + Q_D)\right] \times \frac{Q_T}{Q_A}$$

Note that algebraic manipulation of these formulas reveals the fact that the disposal only charge components for these services can be calculated by dividing the total cost for each cost center by the sum of the discounted transfers to disposal only and from AFR to repository. Similarly, the storage and disposal charge components for these services can be calculated by multiplying each disposal only charge component by the discounting factor ratio Q_T/Q_A.

The charge components for R&D and for Government overhead are the same to all customers and are calculated as for the levelized charge,

$$P_5 = C_5 \;/\; Q$$
$$P_6 = C_6 \;/\; Q$$

The total charge to disposal only customers is the sum of the charge components applicable to them,

$$P_D = P_{3(D)} + P_{4(D)} + P_5 + P_6$$

The total charge to the storage and disposal customers is the sum of the components applicable to them,

$$P_A = P_1 + P_2 + P_{3(A)} + P_{4(A)} + P_5 + P_6$$

An example of this methodology is shown for the reference case. Annual cash expenditures are shown by components in Table A-1. Their present values in 1978 are shown in the bottom line. The revenues anticipated for this case are also shown in Table 1 and their present values also appear in the bottom line. Notice that the present values of costs and revenues are indeed equal.

The formulas previously given applied to the transfers shown in Table 3 of this report produce the following discounted quantities.

$$\begin{aligned} Q_A &= 1{,}944 \text{ metric tons} \\ Q_D &= 16{,}697 \text{ metric tons} \\ Q = Q_A + \overline{Q_D} &= 18{,}641 \text{ metric tons} \\ Q_T &= 1{,}590 \text{ metric tons} \end{aligned}$$

The formulas for allocating the costs to the two types of customers and calculating the charge components applied to the costs in Table A-1 using the discounted quantities shown above produce the results shown in Table A-2. For example:

To arrive at the charge component for AFR services,

$$P_1 = C_1/Q_A = (\$202 \times 10^6) \Big/ (1.944 \times 10^6 \text{kg}) = \$104/\text{kg}.$$

To apportion the encapsulation costs to the two types of customers and arrive at those charge components,

$$P_{3(D)} = C_3 \times \left(\frac{Q_D}{Q_T + Q_D}\right) \Big/ Q_D = (\$613 \times 10^6) \times \left(\frac{16.697}{1.590 + 16.697}\right) \Big/ (16.697 \times 10^6 \text{kg})$$

$$= 559/16.697 = \$34/\text{kg}.$$

$$P_{3(A)} = C_3 \times \left(\frac{Q_T}{Q_T + Q_D}\right) \Big/ Q_A = (\$613 \times 10^6) \times \left(\frac{1.590}{1.590 + 16.697}\right) \Big/ (1.944 \times 10^6 \text{kg})$$

$$= 54/1.944 = \$28/\text{kg}.$$

Table A-1

REFERENCE CASE CASH FLOWS FOR COSTS AND REVENUES
($ millions)

	Costs							Revenues		
	AFR	Transportation	Encapsulation	Repository	R&D	Overhead	Total	Storage & Disposal	Disposal Only	Total
1977					40		40			
1978					86		86			
1979	10				120		130			
1980	15				98		113			
1981	71			5	93		169			
1982	105			20	76		201			
1983	6			80	28	13	127	227		227
1984	6		139	125	9	13	292	100		100
1985	6		121	110	6	13	256	117		117
1986	6		51	85	4	13	159	140		140
1987	6		35	75		13	129	152		152
1988	6	35	37	87		13	178		82	82
1989	6	33	37	92		13	181		88	88
1990	6	30	37	90		13	176		99	99
1991	6	2	37	93		13	151		202	202
1992	20		37	154		13	224		211	211
1993			284	214		13	511		702	702
1994			256	192		13	461		702	702
1995			152	167		13	332		702	702
1996			127	156		13	296		702	702
1997			107	156		13	276		702	702
1998			107	171		13	291		702	702
1999			107	161		13	281		702	702
2000			-346	-92		13	-425		702	702
Total	275	100	1325	2141	560	234	4635	736	6298	7034
Discounted to the beginning of 1978	202	50	613	934	497	106	2402	450	1952	2402
	C_1	C_2	C_3	C_4	C_5	C_6		$Q_A \times P_A$	$Q_D \times P_D$	

Table A-2

CALCULATION OF CHARGE ELEMENTS FOR REFERENCE CASE

Cost Center	Total Costs Discounted to 1978	For Disposal Only		For Storage and Disposal	
		Discounted Costs ($ millions)	Charge ($/kg)	Discounted Costs ($ millions)	Charge ($/kg)
AFR	202	0	0	202	104
Transportation	50	0	0	50	26
Encapsulation	613	559	34	54	28
Repository	934	852	51	82	42
R&D	497	446	26	51	26
Government overhead	106	95	6	11	6
Total	2,402	1,952	117	450	232
Transfers Discounted to 1978 (metric tons)	18,641	16,697		1,944	

REFERENCES

(1) "Economics of National Waste Terminal Storage, Spent Fuel Pricing Study," Y/OWI/SUB-78/42512/2, TRW Energy Systems Planning Division, May 1978.

(2) "Sensitivity of the Federal Fee for Managing Spent Fuel to Financial and Logistical Variations," PNL-2637, June 1978.

(3) "Report of Task Force for Review of Nuclear Waste Management" (Draft), U.S. DOE, DOE/ER-0004/D, February 1978.

(4) "Draft Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Reactor Fuel," U.S. Nuclear Regulatory Commission, NUREG-0404, March 1978.

Mr. Ottinger. I must say it sounds as if you would have been much better off if the Government hadn't gotten in your hair in the first place, and maybe you would be better off now just by saying we will not have an AFR and you guys solve it.

Mr. Smith. Well, the plants would shutdown, and I do not think that is in the best interest of all of us.

Mr. Ottinger. I thank you very much.

We will hear next from the Nuclear Regulatory Commission, Hon. Nunzio Palladino, Chairman, accompanied by John Ahearne, James Asselstine, Victor Gilinsky, and Thomas Roberts.

I believe it is the first appearance before the committee for Mr. Asselstine and Mr. Roberts. I would like to welcome you.

I understand, Chairman Palladino, that you want an exception from our rules to read a very short statement, so we will hear from you first.

STATEMENT OF HON. NUNZIO PALLADINO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, ACCOMPANIED BY JOHN F. AHEARNE, VICTOR GILINSKY, AND JAMES ASSELSTINE, COMMISSIONERS; JOHN MARTIN, DIRECTOR, WASTE MANAGEMENT DIVISION; AND RICHARD E. CUNNINGHAM, DIRECTOR, DIVISION OF REACTOR FUEL CYCLE SAFETY

Mr. Palladino. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee, my colleagues and I are pleased to have the opportunity to testify before you today on behalf of the NRC on the proposed radioactive waste management legislation. We are particularly pleased to see the House of Representatives moving closer to floor consideration of waste legislation and we sincerely hope that the many years of hard work on the part of Congress and many others will bear fruit before Congress adjourns.

The statement we have prepared, I understand, will be included in the record.

Mr. Ottinger. Yes, indeed.

Mr. Palladino. It is general in nature and we hope we can also submit additional comments for the record at a later time after we go through it in more detail.

Mr. Ottinger. Most certainly.

Mr. Palladino. Let me summarize the situation and our views in these words. On the whole, the Commission finds the bill, the substitute to H.R. 3809, to contain all of the elements we believe are necessary for comprehensive waste management policy and we are pleased to see many basic features which the Commission recommended or has supported in the past included in it. Maybe that is enough of an introduction and we would be pleased to try to respond.

[The prepared statement of Mr. Palladino follows:]

TESTIMONY OF
NUNZIO J. PALLADINO
CHAIRMAN
U. S. NUCLEAR REGULATORY COMMISSION

Mr. Chairman and members of the Committee, I am pleased to have the opportunity to testify before you today on behalf of the Nuclear Regulatory Commission, on proposed radioactive waste management legislation. We are particularly pleased to see the House of Representatives moving closer to floor consideration of waste legislation, and sincerely hope that the many years of hard work on the part of Congress and many others will bear fruit before of Congress adjourns.

Our comments today will be general since we have not had time to review the proposed substitute to H.R. 3809 in detail. We may wish to provide supplemental comments for the record. On the whole, the Commission finds the bill to contain all of the elements we believe are necessary for a comprehensive waste management policy and is pleased to see many basic features which the Commission has recommended or supported in the past.

The Commission supports the bill's emphasis on permanent deep geologic disposal. We support the bill's requirement for the selection of a second set of sites for site characterization soon after the selection of candidate sites for the first repository. This is consistent with the Commission's belief that, ultimately, there will be a need for several repositories.

The Commission supports the establishment of a statutory time schedule. We believe this will increase confidence in the Federal government's commitment and ability to provide safe, PERMANENT DISPOSAL OF RADIOACTIVE WASTE. IN GENERAL, WE BELIEVE THE PROPOSED TIME SCHEDULE IN THE SUBSTITUTE TO H.R. 3809 TO BE TIGHT YET REASONABLE.

WE AGREE WITH THE REQUIREMENT FOR MULTIPLE SITE CHARACTERIZATION. THIS IS CONSISTENT WITH THE COMMISSION'S PROCEDURAL REGULATION FOR WASTE REPOSITORY LICENSING. THE CHARACTERIZATION OF THREE SITES WILL INCREASE THE LIKELIHOOD THAT AT LEAST ONE SITE THAT IS ACCEPTABLE FOR A REPOSITORY WILL BE FOUND EARLY, AND THAT IF DIFFICULTIES DEVELOP AT THE FIRST SITE CHOSEN, ALTERNATIVES WILL BE READILY AVAILABLE.

WE SUPPORT THE REQUIREMENT THAT THE DEPARTMENT OF ENERGY (DOE) CONSULT WITH NRC THROUGHOUT THE PROCESS OF SITE SCREENING, CHARACTERIZATION AND SELECTION AS WELL AS REPOSITORY DEVELOPMENT AND OPERATION. NRC'S PROCEDURAL REGULATION WAS DESIGNED WITH THIS TYPE OF RELATIONSHIP IN MIND. GIVEN THAT A HIGH-LEVEL WASTE REPOSITORY IS A FIRST-OF-A-KIND FACILITY, AND GIVEN THE LONG LEAD TIMES REQUIRED TO DEVELOP DESIGNS AND RESOLVE BASIC QUESTIONS OF SITE SUITABILITY, EXTENSIVE PRELICENSING INTERACTION BETWEEN NRC AND DOE IS ESSENTIAL. SUCH CLOSE INTERACTION WILL AVOID UNNECESSARY DELAYS IN THE COMMISSION'S LICENSING REVIEW.

WE ALSO SUPPORT THE REQUIREMENT FOR TESTING OF CANDIDATE SITES PRIOR TO MAKING A COMMITMENT TO A PARTICULAR SITE FOR DEVELOPMENT AS A REPOSITORY. THE PROVISION SPECIFYING THE INFORMATION THAT DOE MUST PROVIDE TO NRC PRIOR TO SITE CHARACTERIZATION IS PARTICULARLY USEFUL.

One of the most important provisions of the bill is the mechanism for State and tribal participation in repository siting and development and for resolution of their objections. The Commission supports requirements for DOE to inform and consult with States and tribes throughout the site screening and characterization stages, and for Presidential and Congressional resolution of formal State or tribal objections.

The Commission supports the provision ratifying NRC authority to set standards for financial responsibility for closure and long-term care of low-level waste disposal sites.

We would like to point out two provisions in the bill that may cause potential problems. First, the bill requires the NRC to promulgate regulations specifically for transuranic waste disposal. The Commission would prefer to license disposal of transuranic waste under its high and low-level waste disposal regulations, and therefore recommends deletion of this requirement. Transuranic contaminated wastes include materials containing a wide range of concentrations of transuranic radionuclides in a variety of physical and chemical forms. Some of these wastes containing low concentrations are appropriate for near surface or deeper land burial, while others may require deep geologic disposal. Transuranic contaminated waste is only one type of waste that could eventually be disposed of in a deep

GEOLOGIC REPOSITORY FOR HIGH-LEVEL WASTE, AND SHOULD NOT BE SINGLED OUT FOR SPECIAL TREATMENT.

SECOND, THE COMMISSION HAS CONCERNS ABOUT SECTION 135(B) OF THE BILL WHICH WOULD REQUIRE THE COMMISSION TO MAKE CERTAIN DETERMINATIONS BEFORE THE SECRETARY MAY ENTER INTO CONTRACTS TO PROVIDE FEDERAL INTERIM STORAGE FOR SPENT FUEL. UNDER THE PROVISION, THE COMMISSION WOULD BE REQUIRED TO DETERMINE THAT THE PERSON SEEKING TO ENTER INTO THE CONTRACT CANNOT REASONABLY PROVIDE ADEQUATE STORAGE IN A TIMELY MANNER AND HAS DILIGENTLY PURSUED LICENSED ALTERNATIVES TO THE USE OF FEDERAL CAPACITY FOR FUTURE STORAGE NEEDS. DECISIONS REGARDING WHETHER OR NOT SPENT FUEL SHOULD BE STORED AT GOVERNMENT-OWNED FACILITIES RATHER THAN PRIVATE FACILITIES CONCERN ECONOMICS AND RELATED PUBLIC POLICY RATHER THAN HEALTH AND SAFETY. FURTHERMORE, SUCH DECISIONS ARE RELATED TO THE TIMING OF APPLICATIONS AND LICENSING ACTIONS. WE BELIEVE THAT IT WOULD BE MORE APPROPRIATE TO GIVE TO DOE THE RESPONSIBILITY FOR DEVELOPING AND IMPLEMENTING CRITERIA FOR ACCESS TO FEDERAL INTERIM STORAGE CAPACITY.

MR. CHAIRMAN, THIS CONCLUDES MY FORMAL PRESENTATION. WE MAY WISH TO SUBMIT FURTHER COMMENTS FOR THE RECORD AFTER WE HAVE EXAMINED THE BILL IN GREATER DETAIL. WE APPRECIATE THIS OPPORTUNITY TO TESTIFY ON THIS IMPORTANT PIECE OF LEGISLATION.

Mr. **OTTINGER**. Thank you, Mr. Chairman.

We just had North Carolina Power and Light testify and I know you were here. There has been some 18 months' delay in licensing expansion of storage capacity at one of its plants. Why does it take so long?

Mr. **PALLADINO**. I sent out for some information on that particular case and I understand that we got the submittal in December 1980, with a request that they needed it by March of 1982. We got started in early 1981 on the review and we were pretty well along when a structural question came up in December of 1981, and that took more time to resolve than had been anticipated.

I understand the approval was granted yesterday, June 8, on that particular item.

Mr. **OTTINGER**. What is the average time for licensing of an expansion for building a new pool?

Mr. **PALLADINO**. The applications for reracking at a reactor to increase storage capacity usually runs 8 to 12 months, although we have had a couple that have gone much longer. The contested ones, particularly Trojan, took 3 years, and Maine Yankee is still in a hearing process after 2 years for increased reactor pool capacity.

Mr. **OTTINGER**. What about construction of a new pool? Have you not had any requests to license construction of new pools?

Mr. **PALLADINO**. I think most, if not all, have been for reracking.

Mr. **OTTINGER**. Building a new pool sounds easy. Why do you think there has been a reluctance to ask for the construction of an additional pool? Why do they go for reracking instead of building a new pool?

Mr. **PALLADINO**. I have to assume it is a balance of a number of factors. The overriding considerations I would expect to be economic and the speed with which it might be done.

Mr. **AHEARNE**. Reracking can be done much more quickly and it is cheaper, so if you have an existing pool and you can rerack you would rerack first.

Mr. **OTTINGER**. What does it cost to build one of the utility swimming pools? Is it an enormously expensive proposition compared to plant construction?

Mr. **PALLADINO**. I do not have any information as to what it costs. Oh, compared to the plant it would be a small fraction.

Mr. **OTTINGER**. Can you pull up the microphone? You are coming through weak.

I understand you testified in the Senate in favor of the expedited licensing procedure for expanding on-site storage as contained in the Senate bill. As I understand it, it is a two-step process for scoping issues and for an interim license.

Why is that needed for the relatively simple matter of dealing with either reracking or the building of a new pool? Why would you need interim licensing? Interim licensing has grave problems, it seems to me, because what you are saying is you will make the decision first and hear the public afterwards, so that the public's comments—well, there is always the potential of reopening the procedures based upon testimony but certainly the public's testimony does not get the same weight it would if the public's testimony was heard prior to the licensing.

Mr. Gilinsky?

Mr. **Gilinsky**. We did comment on that when we testified in the Senate. My own view is that if there is to be interim licensing—and I am not convinced it is needed—but if there is to be interim licensing there should be a requirement to demonstrate the need for it, which I think is in this draft bill.

But also beyond that, it should be demonstrated that there was sufficient cause for not having applied for an expansion early enough so that one could have received permission in time. That I do not find in this draft and I think that is an important addition. Otherwise we will find, or at least we risk having the interim procedures become the norm, and that certainly would not be a good thing.

I would like to add another comment, Mr. Chairman, concerning the procedures in the bill covering the expansion of storage capacity at reactor sites. The bill goes into great detail on the procedures to be followed. My own feeling is that that is a mistake. That is not the sort of thing you want in the law. That really should be left to regulations.

If the Congress wants a particular kind of hearing, it can give us the authority. It can indicate that that is what it wants done. But I think it is a mistake to get into too much detail in the law because sometimes one has not thought through all of the possibilities and there is a lot less flexibility in making adjustments when the details are in the law.

Mr. **Ottinger**. Where specifically do you have reservations?

Mr. **Gilinsky**. Such as exactly what the Commission will do and when it will permit certain issues to be heard.

Mr. **Ottinger**. Scoping provisions, in other words?

Mr. **Gilinsky**. Yes. And there are some other details, as there were in the Senate bill, I believe.

Mr. **Ottinger**. Mr. Ahearne?

Mr. **Ahearne**. I can sympathize with Commissioner Gilinsky's concern about putting in too many details. I think, though, it is important that if a more flexible procedure is envisioned permissible that there will be something to indicate that that is permissible. Right now it is a very formal structure.

Mr. **Palladino**. Mr. Chairman, with regard to your question on interim authority for licensing, I think the main reason for giving support to that concept was to provide flexibility in the event that some of these plants on which we were making reviews got into difficulty and we got into extended hearings, so that we would not have to necessarily shut down if the Commission itself or the staff had found that everything was in order, primarily to provide flexibility for extreme circumstances.

Mr. **Ottinger**. I can tell you the thing that bothers me, we are getting into this more and more. Reluctantly I agreed to interim licensing which proved to be totally unnecessary because of the delay in the licensing process the Commission has experienced not wanting to have plants close down.

Now we have it turn up here and what I see emerging is a pattern in which people are going to say well, the interim licensing works all right in this situation and that situation. We will apply it across the board and it represents, I think, a very serious derogation of the right of the public to be heard and have its views considered in connection with the licensing process.

Do you think with respect to the licensing of pools which you say you ought to be able to do within 8 months to a year, that that is really necessary? They are talking about possible closing down times in 1986 of the existing plants. So if they apply promptly, now you are talking about 4 years to provide the licensing and expansion of existing facilities.

Why do we need this interim licensing in that kind of a situation? Why should we set that additional precedent?

Mr. **PALLADINO**. As I said, if the case is contested and there is a prolonged hearing and there is a possibility of having to shut down a plant, this would provide additional flexibility.

I must say, Mr. Chairman, I have also cautioned industry in at least one of my speeches, indicating that the use of interim licensing is something that we in the Commission would exercise with great care and great caution and would use it only when we thought in our best judgment it was appropriate to do so.

Mr. **OTTINGER**. Mr. Corcoran.

Mr. **CORCORAN**. Thank you, Mr. Chairman.

Mr. Chairman, one of the things, as you know, that we are debating is the question of the appropriate environmental review procedure and I would like to ask the members of our panel to address that issue.

There is some variety as to how we might handle that, but one of the proposals has been that for the selection process of the permanent repository that the Department of Energy would serve in its capacity as lead agency to conduct a full NEPA review and, of course, a full environmental assessment and that there would be coordination and consultation with the Nuclear Regulatory Commission in that process.

Another proposal has been that while we would want the Department as lead agency to do that that the Nuclear Regulatory Commission would also conduct a full NEPA review and a full environmental assessment. That strikes me as being a bit duplicative and also I think gets away from the primary responsibility that the NRC has, and that is to regulate, ultimately, the licensed facility.

What we are talking about is that phase of the process in which we are selecting the site, and I wonder what your comments are and what kind of guidance you can give us?

Mr. **PALLADINO**. With regard to the preparation of the environmental impact statement for the final repository, we do recognize the dilemma we face in maintaining independence and avoiding duplication of effort. We believe—or perhaps I should speak for myself. I think we could proceed in this way—have the NRC participate in developing the outline and scope of the analyses that will be made in the EIS.

We could then have DOE proceed and make its analyses and draw its conclusions. But I think the analyses have to be well enough done so that we can assess independently the adequacy of the conclusions. If it is so well done that we can adopt the EIS in its entirety I believe we could go ahead and do so. But then, of course, we would have to be in a position to defend it in any hearings that follow along.

Mr. Corcoran. So you would want to retain for the NRC the independent authority to concur in the scope of what has been done by the Department?

Mr. Palladino. Yes. We would like to see our participation in that DOE work early so we could make sure the kind of analyses we get are the kinds of analyses that will enable us to draw appropriate conclusions. We think our independence comes in having the detail of the analyses set forward well enough so that we can draw our own conclusions.

Mr. Ottinger. Would the gentleman yield on that question?

[Mr. Corcoran nods affirmatively.]

Mr. Ottinger. The EIS to be prepared before final selection of site, the licensing will take place presumably several years thereafter. We have been talking to the minority about the process in which you participate in the original EIS and then there would be the DOE's principal EIS. When you got to licensing we felt you should have the authority to require supplementation of the EIS with respect to any issues that may have been raised in the intervening period that the EIS has not covered as well as retaining the NEPA authority with respect to judgment.

Does that sound like a sound process?

Mr. Palladino. Yes. I think we certainly would have to have the authority to fill in any gaps in the EIS that we find or that develop after the EIS is completed.

Mr. Ahearne. There is no inconsistency between what you have just described and what the chairman has described.

Mr. Ottinger. There are some who are pushing for complete elimination of the NRC's NEPA authority and for just one EIS without the power of supplementation. I just wanted to get that clear.

Mr. Corcoran.

Mr. Corcoran. I am not sure it clarifies it, Mr. Chairman, because I think that the possibility exists, if I understood your question correctly, that with the kind of role outlined for the NRC in that process that it would be subject to judicial review, which would mean that if there were some cause in the minds of people to question what had been done in the relationship between the NRC and the Department of Energy in this process that they could, under their opportunity during judicial review, require a full environmental impact statement, even before the site selection, and the question I have about that is isn't that for the Nuclear Regulatory Commission a rather significant broadening of your involvement in this whole process, because we are not talking at all about—I certainly would not advocate any kind of procedure whereby your authority ultimately to license, to find a repository, would be jeopardized.

What we are talking about is the site selection process.

Mr. Palladino. I was talking about the preparation of the EIS, which I presumed, at least so far as the NRC's activity in it, would come after we have the request for the construction authorization and would be a part of our review process. And that is the part I was talking about.

Mr. Ottinger. If the gentleman would yield, there is some confusion here. Let me see if I can help. There is, first, the question of what kind of environmental action should be taken and the characterization of the site. There we have heard some testimony. The present draft calls for an environmental assessment. The feeling is we should put more meat on the bones but go with the environmental assessment insofar as findings and determinations.

Then the provisions of various bills provide for a full-blown EIS before final site selection, before a document is sent to the President recommending that he select a particular site. That is the only full-blown EIS that is presently provided for, and that provision—at the present time there is a provision for NRC consultation with respect to the scoping of that EIS.

The next point at issue will come at the time of the NRC licensing process, which will be several years later, after the selection of the site. The question then occurs. Should the NRC be precluded altogether from the NEPA process which we saw in one draft coming from the minority. Should, as we originally discussed, the NRC retain its NEPA authority and be permitted to supplement the EIS to the extent that it covered issues that were presented at the time of the licensing, would be allowed to supplement that EIS with respect to any issues which in the NRC's discretion were not adequately covered?

There is general agreement that there should not be another full-blown EIS covering everything the DOE already did at the time of licensing. Does that help the gentleman?

Mr. CORCORAN. I think the problem is, Mr. Chairman, that we have a very strong position relative to a procedure that works to get a permanent repository operating, hopefully by the year 2000. And the concern is that if in drafting this legislation and ultimately putting it into the law there arises the opportunity for more than one full-blown NEPA review process, that in fact we would miss that deadline by a considerable period of time.

And what I believe, at least, is that in connection with the site selection process there certainly ought to be very close coordination between the two agencies involved. In fact, it would be a terrible mistake, in my judgment, particularly from the standpoint of a smooth and appropriate schedule, for the Department of Energy to ignore or not to consult or not to coordinate with the Nuclear Regulatory Commission, because in the end, if the site in question is selected the NRC will be involved, as it should be, in the licensing process.

But the concern is that if the statute permits in effect two full-blown NEPA review processes, two full-blown EIS statements, that in fact what can happen—and you know there will be judicial review of this entire matter—I think we have seen some of those already today who will be anxious to get involved in that process. They have testified before our committee.

And what could easily happen, it seems to me, unless we are careful of what we do here, is that you would end up with two separate court actions, and that is the problem we want to avoid. And I do not think that we are asking for anything inappropriate in this respect, because it would appear to me, as I understand the Senate language and as I understand what the Interior Committee has done, that after the selection of the site we are not talking about several years before the process begins in terms of licensing.

We are talking maybe, in some cases, 6 months—at the most, 2 years. So we will be in a very close proximity in terms of the NRC's review and involvement with the Department of Energy's full-blown environmental assessment.

So that is what I am trying to avoid.

Mr. PALLADINO. I wonder if I could put in context the answer that I gave. I gave the answer on what would happen with regard to the environmental impact statement after we had the request for construction authorization. That is the first official action with which the NRC gets involved. There is consultation and discussion along the way, but the environmental impact statement that we would have to submit as part of the construction authorization review is the one I was talking about.

Mr. CORCORAN. That clarifies it for me.

Mr. OTTINGER. I would like to point out to the gentleman the Interior bill does not in fact limit the NRC's NEPA authorities. It merely says that they should adopt the DOE's provisions to the extent practical and I think you get a very bad precedent if you eliminate the NRC's NEPA review and I am very mindful of the fact that the Department of Energy just a few years ago was ready to put these wastes into a repository in Lyons, Kans., because inadequate review procedures had gone through.

Had they done that they would have been in the most serious trouble because it was discovered later that in fact there was seepage from that repository and yet another experience with the Department of Energy at the Webb site. Intervenors suggested they had not dug the shafts deep enough to ascertain if in fact there was water, and because of that intervention they dug deeper and hit what they described at the present time as a water pocket. But they found substantial problems.

You are talking about now wanting to place materials in a permanent repository where you will have matters of heat and toxicity for 100,000 years, and I think the public deserves to be adequately protected. And if there are issues that appear in the licensing process which do not appear in the DOE environmental impact statement process at the time of the selection of the site that the NRC, I think, deserves from the point of view of the public health and safety further examination. It would really be very unwise to conclude that.

The gentleman from Illinois.

Mr. CORCORAN. Mr. Chairman, let me just comment. I agree with what you have said with respect to the need to provide full public protection in this matter, and that is precisely why we want to give, in contrast to the two examples to which you made reference, we want in this case to give to the NRC the opportunity and the authority at the site selection process to be involved in the so-called scoping to make certain that the concerns that the NRC would have from an environmental and safety standpoint would be considered.

So we are not talking about a separation. We are not talking about something like the WHIP procedure where there is no licensing, where you do not have this kind of coordination and cooperation between these two critical agencies in this matter. In fact, what we are talking about is having the authority in the legislation for the NRC to concur on the scope and on the outline of the environmental review process that the Department of Energy is going to be in.

So there is going to be coordination. There is going to be protection. We just want to make sure it is an appropriate process which does not in and of itself kill the project.

Mr. **Ottinger**. As I understand it, Mr. Palladino—and I guess we should get away from our exchange and get your opinions on this—you feel you ought to have NEPA authority in the authorities to supplement the EIS licensing stage.

Mr. **Palladino**. [Nods affirmatively.] At the licensing stage.

Mr. **Ottinger**. Mr. Markey.

Mr. **Markey**. Thank you, Mr. Chairman.

Mr. Palladino, in your testimony in your discussion of transuranic waste you state this material contains a wide variety of physical and chemical forms in a wide range of concentrations, and yet you feel there should be no special treatment for this waste, that there is no reason not to include it in a final repository. Is that correct?

Mr. **Palladino**. That is correct, either as high level waste or low level waste.

Mr. **Markey**. So in fact we have a technology to store any really high level radioactive waste in this repository?

Mr. **Palladino**. It is my understanding that much of the transuranic waste would be low level waste, but we could handle it in either case.

Mr. **Markey**. When Secretary Edwards testified before us on Tuesday on the issue of inclusion of defense waste in a civilian repository, he stated that its form and concentration were precisely the reasons not to put defense wastes in a final repository. Is that the case?

Mr. **Palladino**. I do not have that much detailed knowledge. If I could talk to the Director of our Division of Waste Management, Mr. Martin. Could you respond with regard to that?

Mr. **Ottinger**. Would you identify yourself for the record?

Mr. **Martin**. Yes. My name is John Martin, Director of the NRC Waste Management Division. What was the question again, Mr. Markey?

Mr. **Markey**. Secretary Edwards stated that in its form and in its concentration defense waste was not appropriate for this permanent repository we are talking about.

Mr. **Gilinsky**. For this particular one or for any one?

Mr. **Markey**. This particular one.

Mr. **Martin**. A permanent repository should be capable of accepting either.

Mr. **Markey**. It should be?

Mr. **Martin**. Yes. They are technically rather similar.

Mr. **Markey**. Thank you. I have also heard—maybe you can answer this question as well, sir. I have also heard that for national security reasons we should not mandate military wastes be covered by this bill. How practical would it be for the Department of Defense to disguise the contents of its waste before handing it over for final repository?

Are there any technical barriers, in other words, to that approach which would allow them in some way or another to make it impossible for this defense waste to be interpreted?

Mr. MARTIN. I do not think we have ever looked at that.

Mr. MARKEY. Could you look at that question for us?

Mr. MARTIN. I think we could, yes.

[The following response was received:]

We would need to know the compositions of the waste form to the extent necessary to assess whether it, in combination with other engineered barrier components under repository conditions, will result in an overall engineered system performance which meets requirements of our high-level waste regulation 10 CFR 60. We would also need to ensure that the waste products being delivered to the repository are within acceptable limits and in fact are represented by the range of compositions of test samples which qualify performance predictions.

Mr. GILINSKY. I must say for myself in conversations with people and in looking into this, I have never found that the problem has been that some information will be developed from looking at the waste. It has been more a general antipathy and distaste for the regulatory process and the fear that it will not stop there and it will extend back into God knows what—defense reprocessing plants and so on—and there is a very strong disinclination to get involved in the regulatory process.

Mr. PALLADINO. Mr. Markey, I think there is more than just the waste form the military would develop. There is also the entire package. I think it would have to be further developed in cooperation with DOE.

With regard to the implication of licensing on the knowledge, it is my understanding that the Energy Reorganization Act requires that any facility intended for long-term storage is to be licensed by the NRC unless it is an R&D activity.

Mr. MARKEY. So you do not see any difficulty if they follow correct procedures in packaging this material and storing it in the civilian facility?

Mr. PALLADINO. My first inclination is that provided they meet the requirement for the civilian waste.

Mr. MARKEY. And you are saying, Mr. Gilinsky, in your study of this you have never found a good case to be made for arguing that some of this defense waste would reveal military secrets that would be of value?

Mr. GILINSKY. I cannot claim to have made a scientific study of that question, but my feeling on the basis of talking to people is that that is not the main concern.

Mr. MARKEY. All right. Thank you.

Mr. OTTINGER. Would the gentleman yield on this point?

Mr. MARKEY. I would be glad to.

Mr. OTTINGER. The Defense Department has indicated to us and to the House Armed Services Committee chairman that they do not have any real problem, provided that the NRC does not have to inquire how the waste was formulated, the details of its composition. If they can deliver it at their military post gate, waste packages meeting the specifications that you have set forward, they do not have any real problems with that.

The thing that really concerns me is why do you have to know about that waste? Do you have to know anything about the processes which produced it in order to be able to license it, or do you just have to know its radioactivity? How much information do you need to know in order to be able to feel confident?

Mr. **Palladino**. Well, never having made such an analysis, I would have to speculate. But we would have to have enough information so that we could evaluate whether it meets our packaging criteria, and that would include the composition, the heat generation and the amount of radiation coming out of it. You would have to know enough about it so that you could make that evaluation. But how it got there I am not sure we would have to know.

Mr. **Ahearne**. I think the point that the chairman earlier mentioned is under the statute the permanent disposal, whether civilian or military waste, still has to meet the licensing criteria and will have to be licensed, and the same level of detailed information on the material will have to be known.

The issue of the composition I do not think anyone at the NRC has ever examined, because it is not an issue which has been significantly raised, because, as you know, we have been a long way from getting into the details of a repository and that would be an issue then.

Mr. **Ottinger**. The critical question for us is whether we can deal with this military waste as a part of this bill or whether it raises so many problems it will have to be delayed because of concerns by the military and the Armed Services Committees and the people to whom we have spoken on the military side of the Department of Energy said they think they can meet your packaging criteria and your regulations which you have put forward so far.

My concern is is that sufficient or will you have to have additional information? Would you have to reach back into how that waste got where it was, how it was manufactured?

Mr. **Ahearne**. My understanding—but we can ask Jack Martin in a minute—my understanding is what we need to know is the details of the waste. How that waste was generated I do not think is relevant.

Mr. **Martin**. Yes. I think that is exactly it. We need to know the details of what is in the waste and the quality assurance that went into the product. But how it was generated or where it came from or the details of what defense activities it resulted from are not very relevant.

Mr. **Gilinsky**. When you say the product, do you mean the package?

Mr. **Ahearne**. The details in the package.

Mr. **Ottinger**. Does the existing regulation you put out with respect to the requirements for packaging cover all the information you would need to know?

Mr. **Martin**. Yes.

Mr. **Ottinger**. That is really what I needed to know. Casks—I am sorry. Mr. Markey is on. All right, casks.

A solution to the interim storage problem that has been put forward has been the generic licensing of casks or making available casks that could be used to obviate the need for away-from-reactor storage. At what point are you and how long do you think it would take to go through a licensing procedure to have dry storage casks available?

Mr. **Palladino**. I do not have a good feel for how long it would take us to go through that. I could give you better information on what it takes for pools, but the first time one goes through such an evaluation it probably takes more time than it does after one has developed a routine.

I would hesitate to guess at an answer, although I think I have heard some early figures on what it would take to evaluate the dry cask.

Mr. **Cunningham.** I am Richard Cunningham, Director of the Division of Reactor Fuel Cycle Safety. There are three stages for the cask question. We now have in our possession a topical report that will take 6 to 9 months to evaluate. That gives us information about the design specification of the cask.

The second stage would be to license somebody to use the cask at a site to store waste in and for the first one we would estimate it would take about a year, having never done one before. Following that, we would hope—and we are doing this in parallel—to look at the generic licensing question where we could have some enveloping parameters and, if so, we could certify the cask and issue some sort of license in relatively short order, because these casks would be all of similar design. There would be three or four designs, but they would all be replicas of each other after the first one.

I might add our 1 year for licensing does not include hearings. If there is a hearing we do not know how much time it would take.

Mr. **Ottinger.** What would be the outside parameters? Would you feel pretty assured you could do it within 3 years?

Mr. **Cunningham.** Yes, sir. Well, there is no limitation on a hearing. That is very difficult to answer, but from the technical review and from a technical and environmental review we could certainly do it in 3 years.

Mr. **Ottinger.** Is there any acceleration that makes sense to the generic licensing process of casks?

Mr. **Palladino.** For the dry casks?

Mr. **Ottinger.** Yes.

Mr. **Palladino.** Since we have not done the first one it is hard to know where to begin to accelerate it. But as Mr. Cunningham indicated, after having done the first one on the dry cask we should be able to expedite the subsequent requests rather rapidly.

Commissioner Ahearne points out that for quite some time there was no interest really in dry casks.

Mr. **Ottinger.** There was what?

Mr. **Palladino.** Little interest in dry casks, and that is why we are just at this stage.

Mr. **Ottinger.** Do you have an application before you yet?

Mr. **Palladino.** I am not aware of any.

Mr. **Cunningham.** We do have one topical report. This is not an application; it is the design specification submitted by the manufacturer of the cask.

The purpose of a topical report is we can review the design specification once. Then, when we get topical applications in, we can review that at that time. It saves time. Certainly TVA, in cooperation with DOE, is going to submit an application for casks and they are going to see how they go to other reactors.

Utilities have also given at least an indication of high interest in getting casks approved and they have given some target dates when they might submit an application. It depends on how we come out with the application of the topical report.

Mr. **Ottinger.** Is there any way of incorporating into your procedure the European experience? Someone today has testified that

Europe is in fact using dry cask storage and has some experience with it.

Mr. **Cunningham**. Yes, Mr. Chairman. The first topical report we received was from the German company that manufacturers these casks, the German-made casks. That topical report contains, among other things, the operating experience with casks in European countries. It is all of the information they have about their casks.

Mr. **Palladino**. And that is under evaluation?

Mr. **Cunningham**. It is presently under evaluation.

Mr. **Ottinger**. One last question from me, and that is with respect to the schedule established in this bill you have now issued your regulations of what you will require.

Mr. **Palladino**. On the technical requirements we have put them out for comments. We have the comments and we are expecting a proposal by the staff on the final rule within a matter of weeks.

Mr. **Ottinger**. You will shortly be issuing the regulations. Under the regulations you are contemplating how long do you think it would take for the Department of Energy to satisfy the requirements you have set forward?

Mr. **Palladino**. How long would it take the Department of Energy to satisfy it? That is difficult to say. It depends upon the quality and the character of the work that is done. We intend to work closely with them through the site characterization stages and I hope as a result of that working closely with them that we will get a complete submittal.

I think the important point on which I could make some comment is that the length of time we will take to make our review can be quite dependent upon the quality of the submittal that DOE makes, and that is why we are interested in working with them closely along the way.

Mr. **Ottinger**. Well, the present schedule, if my counsel here will help me out, I believe calls for selection of the site within one year after enactment of the act for candidate areas and then by 1987 is the shortest in any of the bills for final selection of the initial site.

Mr. **Ward**. I think the Senate bill may have 1986.

Mr. **Ottinger**. 1986? Does that give you any concern, either the 1 year or the 1986, 1987 or 198[illegible] deadlines which are the three choices before us legislatively?

Mr. **Palladino**. Do you mean to make the choice of the site on which they are going to make the submittal for a construction authorization?

[Mr. Ward nods affirmatively.]

Mr. **Palladino**. The part of the bill I thought you might be speaking about has to do with how long it will take us to make our review. We have characteristically said that it would take us between 3½ and 4 years to do that review.

The proposal of May 26 indicates 3 years plus the possibility of an extension. While that is tight, I think it is realistic enough for us to work with and we would certainly try to meet the 3 years. If it turns out that we have incomplete information from DOE, we may have to come back and request an extension.

Mr. **Ottinger**. Mr. Ward?

Mr. **Ward**. But do you have any concerns about specifying the number of years that the Department of Energy has to conduct the site characterization activities?

Mr. **Palladino**. I do not know. My staff says they believe the overall schedule and the substitute to 3,809 is tight yet reasonable.

Mr. **Ward**. Does that assume that in meeting your requirements of at least three sites, DOE is submitting three qualified sites or an initial three sites, one or two of which may turn out to be unsuitable?

Mr. **Palladino**. We are not asking for three sites, so that one could pick the best of them. We are asking for three sites so that we make sure we get one good one and so that if in proceeding along the way we should find that there is some difficulty that develops at the first choice at least there is some backup on which we could fall if we had to.

Mr. **Ward**. So your interpretation of your proposed regulations are that the sites do not ultimately have to be qualified as long as there was an initial good faith effort?

Mr. **Palladino**. Yes. Yes, sir. Incidentally, earlier you asked about our regulations and I spoke about the technical regulations that are in the process of review. We did have our procedural regulation published as final earlier and I wanted to make sure that the difference between the two was noted.

Mr. **Ward**. There is some concern by some of the Members that the potential sites have already been selected and they may be based upon historic circumstances rather than desirability or compliance with your criteria. How will you review the site selection criteria of the Department, one, to insure compliance with NEPA in terms of there were no predecisions and, second, in interpreting their prejudice toward historic sites that have been used for nuclear purposes?

Mr. **Palladino**. I find it difficult to comment on whether the sites under consideration have been preordained or not, but I can assure you that the Commission will be looking very carefully to make sure that the site is one that will measure up to the requirements and that includes its structural integrity, the ground water motion, the hydrology of the situation, and that we have enough information to assess the potential success of that particular type of site.

Mr. **Ward**. But do you consider it within your existing authority your responsibility to evaluate the initial designation of potential sites by the Department of Energy, or do you intend to merely look at the three sites or however many they submit to you?

Mr. **Palladino**. It is my understanding we will be looking carefully along the way with them, but we would specifically look at the three sites that are proposed. We do not take any official action, though, until we get to the point of requests for construction authorization.

Mr. **Asselstine**. If I could add just a comment or two on that, it seems to me as is done in the substitute draft there is some benefit first in requiring that DOE prepare specific guidelines for selecting sites before those sites are selected and that those guidelines address a number of factors.

And, second, that the other agencies involved in this process, including the Commission, have an opportunity at least to consult on those guidelines so that we get started off on the right foot and we end up with a set of sites for characterization that are likely to prove out to be acceptable sites.

Mr. **Palladino**. Mr. Martin also points out that in the event none of the sites look good for us, we might recommend continuing on to evaluate other sites.

Mr. **Ward**. Is there any concern about the adequacy of your existing statutory authority to issue preapplication review criteria?

Mr. **Palladino**. A preapplication review? I do not think there is anything that prevents us, but it would not be in the form of a licensing.

Mr. **Ahearne**. It would not be a requirement. As you know, what we have tried to do has been to say here are the criteria we expect to be met and then we have tried to build in a system and a procedural rule which encourages the DOE to work with us as they go through those initial stages in order to have some high assurance that by the time they get ready to submit an application the information we need will be there.

Mr. **Ward**. Do you think that is adequate or would you prefer mandating the Department cooperate?

Mr. **Ahearne**. In theory it certainly ought to be adequate since it is a national program to meet a national responsibility.

Mr. **Palladino**. But I think in the May 26 bill you do have provisions that require certain forms of consultation. At least as I recall you had some requirements.

Mr. **Ottinger**. Well, the question is should we give you veto power? Should we give you the power to say no?

Mr. **Palladino**. I had not thought about that. Maybe we could comment on that separately.

[The following response was received:]

The Commission believes that there are adequate provisions for close interaction and consultation during the site screening phase where sites will be identified for the more detailed characterization phases and a veto should not be required.

Mr. **Ahearne**. Since you raised that, let me comment and perhaps someone else will want to go further. It appears to me we really tried very hard to build in a system to get a cooperative arrangement with the Energy Department. It is my sense that over the last 6 to 8 months that has not worked very well.

It has moved into a relationship we have been trying to build up. It is difficult, obviously. There is an arm's length relationship that must be kept. But on the other hand they are two branches of the Federal Government and we are trying to make sure the information is developed in such a way that at the time for either site characterization or license application that the information is there.

I do not think the working relationship has been at all as good as we had hoped it would be, for whatever reason.

Mr. **Palladino**. And I think that is a matter that deserves more attention between Secretary Edwards and myself, to make sure that the atmosphere of cooperation exists and the intent is to cooperate to the extent we can.

Mr. **Ottinger**. I must say it worries me. I perceive an attitude on the behalf of the Department of Energy that we have all of these answers and we will rush ahead and put the stuff someplace and that all of the steps to protect the public, for public participation, are nuisances that ought to be swept out of the way as quickly as possible, including the NRC.

That distresses me because we are dealing here with a very serious matter and the previous DOE record in this regard is not entirely salutory. So I think I would be much more comfortable if the NRC, who has the responsibility for public health and safety, had the power to stop things or to insist that additional information be developed at some point where you feel things are being rushed too quickly.

Mr. PALLADINO. Of course, anything we can do to help the cooperation would be beneficial. In the end, the NRC must make its finding during the construction authorization and review. And if the job has not been done well up to that time the review gets prolonged or it turns out to be unfavorable.

While that is not a point of concern with regard to public health and safety, it does not help in our getting the waste repository.

Mr. OTTINGER. That makes it essential that you be given the opportunity to expand on the EIS. At that juncture, if the information has not been adequately developed by the DOE and you have not had any power to require that that be done more carefully at an earlier stage, it becomes pretty important that you at least have the power to require that information.

Mr. PALLADINO. At that stage we can, and if we found gaps we certainly would.

Mr. OTTINGER. Well, we want to make sure that you can. Mr. Warner.

Mr. WARNER. Yes. Thank you, Mr. Chairman. Just a couple of questions I would like to ask.

First, as regards your proposed regulations under 10 CFR 60, the technical criteria, would you all support a voluntary arrangement in the statute to provide authority to the Commission to generically license portions of the requirements for the geological repository that could be generically licensed and would not be site-specific?

In particular I am thinking of such items as waste handling facilities on the surface, personnel qualifications, emergency evacuation capability, different management requirements and even the criteria for waste solidification facilities.

Mr. PALLADINO. You are going beyond the experience that we are going to gain with one or two repositories. But I could possibly see some generic approach to the waste package.

The other things, some of the other things you mentioned, such as the emergency preparedness and the like might be more site-specific than it first appears, but we currently set our requirements so that they are performance requirements. And to that extent one could try to look at those things that you can measure on a performance basis and generically approve them.

Mr. AHEARNE. Just one comment. I know I have not thought about that particular question, but let me give you just one part of an answer which I will be trying to think through later. If you licensed the packaging generically you have almost committed yourself to the position that you will definitely set up separate performance characteristics.

It automatically says that the people who are arguing that you ought to look at it in total and trade off various pieces, that they are wrong because obviously to do it generically you are going to put in some parameters that are going to have to be met by every site.

Mr. **Warner**. For some of the issues in licensing the facility other than waste packaging.

Mr. **Ahearne**. Sure, the others, but I was just commenting on waste packaging.

Mr. **Warner**. The other question would be would you all support authority in the Commission to provide a limited work authorization to the Department of Energy to begin constructing some of the surface facilities, including surface handling facilities?

Mr. **Palladino**. He is going to speak for himself here.

Mr. **Ahearne**. No, not for this first repository. It just does not seem to me that given the difficulties, the many, many years of carefully trying to get this thing under way. I think that we ought to be committed to doing it procedurally without a limited authorization.

I am afraid from my point of view the limited authorization makes sense once you are relatively familiar with the procedure. Then you can parse out a piece of it and say all right. In this particular case we know what is needed at that stage and go ahead. This one is hardly of that character.

Mr. **Warner**. So for other than the first repository it might be acceptable?

Mr. **Ahearne**. Yes, I mean, to me.

Mr. **Palladino**. I do not know if others want to comment, but my feeling is that for the first of the kind we should proceed properly and not try to take shortcuts such as could be implied by a limited work authorization.

Mr. **Warner**. Thank you, Mr. Chairman.

Mr. **Ottinger**. Mr. Ward.

Mr. **Ward**. Can I ask your newest Commissioner there, you made reference earlier to the guidelines. Do you see the guidelines as advisory or mandatory?

Mr. **Asselstine**. I guess I have viewed those as mandatory. That is, that any site that would be proposed for characterization would have to satisfy the guidelines.

Mr. **Ward**. And one last question. Is there any comment you would like to make on the Senate bill?

Mr. **Asselstine**. I think I should disqualify myself on that one.

Mr. **Ottinger**. With respect to the AFR, if there is to be one, the provisions that are considered in the various bills are to have an existing Federal facility that is presently handling high level nuclear waste or similar materials, according to the Udall bill. We do not know quite what that means. But under the Udall bill there is to be no licensing of expansion or modification in that facility and that gives me a considerable amount of concern.

What is your attitude towards the need for licensing the expansion or modification of an existing facility, Government facility?

Mr. **Palladino**. You are talking about——

Mr. **Ottinger**. Let us say Savannah River as an example.

Mr. Palladino. I want to make sure I understand the question correctly. You are talking about delivering spent fuel to one of the DOE facilities that now exists?

Mr. Ottinger. That is correct, and it might involve construction of a whole new facility at that site or it might involve expansion of the existing facility or making new arrangements for the lining of an existing facility because it has not actually used civilian spent fuel before and civilian spent fuel, as I understand it, is more radioactive and hotter than many of the reprocessed materials presently in Government facilities.

What I am asking is with respect to at least major modifications and the building and construction of new facilities, should the NRC be required to license?

Mr. Palladino. The answer to that is rather complicated. There are a lot of implications and assumptions one would have to make.

Presumably if these facilities are already storing waste they have met the requirements that DOE felt were appropriate. On the other hand, if they were constructing an entirely new facility, especially for the civilian waste, I expect we ought to go all of the way through the licensing process.

Mr. Ottinger. And what about the halfway inbetween? Suppose you have a DOE facility that has been using military waste and they want to double the size of it and put in civilian waste?

Mr. Palladino. The inbetween situation is always the most difficult. I would say at the very least we would have to be an important party, a consultant in the process. I do not know if we have any further answers on this or not.

Mr. Ahearne. Certainly if it were a new facility I would think it would just come under section 202 of the Energy Reorganization Act.

Mr. Ottinger. What does that mean?

Mr. Ahearne. That says that we have licensing authority over DOE facilities used primarily for the receipt and storage.

Mr. Asselstine. Except the Udall bill would exempt a federal facility from that licensing requirement.

Mr. Ahearne. But under current law we would have it.

Mr. Ottinger. And what I am asking you is in terms of the protection of public health and safety should there be licensing, or is it all right to go along with the Udall exemption?

Mr. Palladino. I will express a personal opinion. If it were a new facility I think it ought to be licensed.

Mr. Ottinger. Is that the general view of the Commission?

Mr. Asselstine. That is mine too. I would add one other point, though. It seems to me that illustrates the dilemma you get into by requiring that is you are going to have these facilities, they be an expansion of an existing Federal facility. Because when you talk about these facilities, they are primarily defense activity facilities and there is an understandable reluctance on the part of DOE, I believe, and others, to have all of a sudden NRC injected in there and, indeed, to have a commercial bias involved as well.

So there may be some question about the wisdom of using Federal facilities—an expansion of the Federal facilities—as a way of dealing with the interim spent fuel storage facilities for the commercial sector.

Mr. **Ottinger.** I sympathize with that, but it seems to be what we are faced with as a last resort. My own view is you do not need an AFR and if we told industry there will not be one they would solve their problem fairly readily, but that is not the prevailing view.

And what we have come down to is to try to make it as difficult as possible to get an AFR, to have an actual showing that would be reviewable in a court that they could not expand on site or get dry storage or get whatever transshipment among facilities or whatever. That is, if they cannot make such a showing, then the plant would have to close down.

They could use an existing facility. Then you get to the question, if you are using the existing facility, what kinds of safeguards are needed with respect to that existing facility? That is more or less where we are and that is where I need your guidance.

The Udall bill exempts it. We have been talking about language which says if it is a minor adaptation of an existing facility you would not have to license, but if it were a major modification, expansion or construction of a new facility you would require it. What we are really seeking—and you may want to consult on it and give us an answer for the record—but if you can give us an answer now it would be helpful, because that is one of the key issues which we are presently discussing.

Mr. **Palladino.** Unless any of my fellow Commissioners feel otherwise, I would suggest we give that a little thought and submit a response for the record.

Mr. **Ottinger.** If you could do that by early next week, it would be very useful for us.

Mr. **Palladino.** We will try to do that.

[The following response was received:]

The Commission already has statutory authority to regulate new and existing DOE facilities used primarily for the storage of commercial spent fuel. (Section 202(3) of the Energy Reorganization Act, 42 U.S.C. § 5842(3).) The Commission continues to believe that new Federal Storage facilities for commercial spent fuel should be licensed by the NRC. However, the Commission recognizes that there are considerations which may make the licensing of an existing DOE facility impractical. Licensing is most effective in a situation where a full range of options exists and where the licensee has the capability to choose from or at least agree to alternatives. For an existing facility, alternatives for modifying the facility are limited.

Moreover, NRC licensing of interim storage at an existing facility might require inquiry into existing activities that could delay the licensing process. Application of NRC's criteria for regulation of spent fuel storage, 10 CFR Part 72, would require examination of other DOE activities in or near the facility which might influence safety of the storage facility. In addition, from the operational standpoint, spent fuel storage activities could be integrated with the other activities conducted in that facility and at that site and it might be difficult to define the boundaries of the licensing action. It is very likely that information related to design and quality assurance of facilities which may be several decades old would not be readily available, if available at all. Attempts to provide appropriate information to demonstrate compliance with 10 CFR Part 72 through searches for old records, tests and analyses could be time consuming and costly. It could lead to extensive delays in the licensing process and might result in the inability to reach a licensing decision due to difficulties in providing specific information required by 10 CFR Part 72. If there is a near term need for DOE storage capacity which necessitates the use of existing DOE facilities, the licensing process could cause an intolerable delay. Thus, for existing facilities and modifications of existing facilities for spent fuel storage, the Commission does not believe that licensing (as opposed to other forms of regulatory oversight) is a very effective approach.

Added assurance that the use of an existing DOE facility, modified as necessary for storage of commercial spent fuel, will adequately protect public health and safety and the environment could best be provided through an NRC consultative role. Informal review and consultation by NRC could provide an independent measure of safety without the delays attendant to formal licensing. The Commission has previously suggested that a consultative approach may be most appropriate for existing facilities. See NUREG-0527, Report to Congress on Extending the Nuclear Regulatory Commission's Licensing or Regulatory Authority to Federal Radioactive Waste Storage and Disposal Activities, September 1979.

To the extent that DOE might use casks for dry storage of spent fuel at an existing DOE facility, the Commission believes that such casks should be ones that have been evaluated by NRC and found suitable for licensing.

Commissioner Gilinsky's Response: Clearly, the health and safety of the public would best be protected by some form of NRC licensing process, even in the case of existing DOE facilities. Although DOE has experience with waste facilities, several new factors are involved here. DOE has no experience with commercial LWR fuel, and some of their facilities are old. In fact, DOE's facilities have recently been criticized by a GAO report ("Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities, August 4, 1981), which recommended an NRC safety review.

A special licensing process might have to be devised to accommodate the problems arising from licensing an existing facility to receive commercial LWR fuel. Other non-safety considerations may argue against such licensing, but these are largely beyond the purview of the Commission.

Mr. OTTINGER. Any other questions?

[No response.]

Mr. OTTINGER. We thank you very much indeed for your time and your patience in waiting this long.

Mr. PALLADINO. Thank you, Mr. Chairman. We have appreciated the opportunity to be here.

Mr. OTTINGER. We hear next from a panel of environmental groups: Brooks Yeager from the Sierra Club; Michael Faden, legislative counsel, Union of Concerned Scientists; Renee Parsons, Friends of the Earth.

I would like to thank you for coming and for your endurance and patience, and also express my regret that somehow or another by the time you folks get on everyone else seems to have disappeared. One day I hope we can organize a hearing where you get heard first.

STATEMENTS OF BROOKS YEAGER, WASHINGTON REPRESENTATIVE, SIERRA CLUB; RENEE PERSONS, LEGISLATIVE REPRESENTATIVE, FRIENDS OF THE EARTH; AND MICHAEL FADEN, LEGISLATIVE COUNSEL, UNION OF CONCERNED SCIENTISTS

Mr. YEAGER. I am Brooks Yeager, representing the Sierra Club; and this is Renee Parsons for the Friends of the Earth; and Mike Faden, the Union of Concerned Scientists. You know us all by now through long travails on the waste bill.

I first of all would like to thank you very much for holding these hearings. I think they have been very valuable and they have brought out a lot of testimony which in my opinion has not been heard, points of view which have not been considered in past deliberations on the bill in this Congress or the last Congress.

I think that what we have planned to do today—and I will certainly shorten my statement. It is my understanding they will be submitted for the record.

Mr. OTTINGER. What I am interested in hearing from you is your principal concerns with respect to the legislation presently being considered, you know, where you really feel strongly, what kinds of provisions you would like to see in those areas of particular concern.

Mr. YEAGER. That is precisely what we would like to address. I am prepared to talk particularly about the repository siting program, Renee will try to deal with the interim storage question, and Mike will talk about the onsite licensing questions.

We have all, all of our organizations, have supported during this Congress and the last passage of a comprehensive waste bill. I think that is important to note, particularly from the Sierra Club's point of view, because we believe that the question before the Congress is not whether or not there is a nuclear waste bill or nothing at all, but the question is whether or not Congress can adequately address the problems in the current nuclear waste management program.

At the Department of Energy there is an ongoing program. It is prepared to attempt to site permanent repositories. That is a general goal with which we agree.

But we are afraid—and I think in connection with the past testimony before this committee that has been borne out—that the program is not going very well, and that there are a number of options available to the Congress in current legislation to attempt to correct the mistakes of the current DOE program, rather than to ratify them.

We have specifically supported a legislative approach aimed at a safety-first, technically thorough program for the establishment of permanent repositories. At the same time, all of our groups have opposed new Federal commitments in other areas of waste management, particularly in the interim storage area, which we feel are unnecessary and unwise.

I think that, having listened to the testimony in these hearings and having talked to a number of State representatives, it is hard not to arrive at the conclusion that DOE's waste program is not going well. The program dates are being telescoped at the same time that States are telling congressional committees that they are not receiving adequate cooperation from DOE in getting information and understanding what the process is, where the decision points are, whether or not DOE has in fact made prior decisions on sites they have not revealed to the States they are working with.

At the same time, it is clear that DOE, in attempting to telescope the dates available to it for siting a permanent repository, is willing to leave aside the resolution of some remaining technical questions and to, in our view, prematurely narrow the scope of its geological work in order to arrive at what it views as an acceptable site.

Our worry is it will not in the end arrive at an acceptable site, and I think that worry has been borne out by testimony before the Environment and Public Works Committee of the Senate last year by the U.S. Geological Survy, in which the Assistant Director, Mr. Devine, said in his view the schedule advocated in the Senate bill would be impossible to meet while also delivering a high degree of confidence that the final site arrived at would be licensable.

I think that the emphasis at DOE on avoiding procedural roadblocks, as they see them, to siting a final repository leaves us with an impression that is clear and unsettling about the direction which they wish to take the program. I think they have adopted several viewpoints that have been held in the past by representatives of the nuclear industry on this issue, that the waste problem has been "studied to death," that programmatic environmental safeguards should be viewed as obstacles rather than points at which confidence in the program could be improved, that speed in the program is more essential than certainty, and that all of the pertinent geological and geophysical questions have been answered, which we think is not yet the case.

We think the consequences of DOE proceeding with the program in that frame of mind will be increased public and State resistance, rather than cooperation, and in our view that would be a tragedy of high proportion, because we do feel that it is a goal of utmost importance to site a publicly acceptable safe repository for radioactive waste.

I think in the context of the current DOE program we feel the goals of congressional action should be to mandate a program which puts DOE back on the right track, which makes sure that the schedule for repository site selection gives both DOE and NRC adequate time to select a reasonable number of potentially promising sites, to have full cooperation with the States in the siting investigation process, to go through the necessary environmental reviews in a character of seriousness in an attempt to gradually build public confidence in the safety of the program, and to meet any State challenge that might arise out of the siting decision in such a program.

We also feel that Congress should aim at a program that presents a unified siting program that embodies both, that is a siting program that would include both military and civilian wastes. We also feel in doing so it would be best to avoid the more contentious disputes surrounding interim storage and long-term storage which have arisen in the course of this legislation.

I would like to comment on a couple of particular statements which have been made in the course of today's hearings, which I felt were valuable. Particularly in Governor List's testimony, he urged the committee to see to it that there was adequate time to consider sites prior to choosing sites for characterization, and in his statements regarding the NEPA process.

In our view, one of the more important dates in this whole site selection enterprise will be the date on which the three sites, or more if mandated by Congress, are chosen for site characterization under the terms of the bill. It is very important that that date be such that DOE can make a rational choice of what are its most promising sites and not such that it forces, as I think you have mentioned, DOE to choose sites with which it is already familiar or where it has already done testing, whether or not those are geologically preferable sites.

At the same time, it's our point of view that the environmental impact review that occurs with reference to any particular site prior to the time at which it is chosen for characterization is very important. There are a number of reasons for that.

Not only is it a question of what the nonradiological impacts of the characterization process may be on the site. In the case of the

Utah site, those may be significant, because that site is 1½ miles from Canyonlands National Park, and the $100 million or $120 million characterization process would clearly have a major impact on that site.

Even in regard to sites such as Hanford or the Nevada test site, which are not in that kind of a situation, the early point at which sites are chosen for characterization represents an opportunity for the State to get a look at a number of issues which will not be looked at under an environmental assessment, in our point of view, unless the issues are specifically stipulated in the bill.

Those issues are the comparative solidity of that site in connection with other sites that might have been chosen for characterization in the same media or the same region; and also, the likely impact of siting a repository at that site. These are issues which as little as 2 years ago the Department of Energy promised the States would be reviewed prior to choosing a site for characterization, and that that review would be embodied in an environmental impact statement.

That statement would not need to duplicate any information that would later be available in a technically more detailed statement regarding specific site and repository designs for the final repository. But I think it is an important moment for the State to be able to look at serious impacts having to do with transportation of large volumes of high level wastes, impacts on communities from having a repository sited in that area, and those sorts of larger impasts.

Mr. OTTINGER. Do you have a specific recommendation to make to us in terms of schedule?

Mr. YEAGER. My recommendations in terms of schedule would be couched in two ways, I believe. We have advocated in the Senate and in previous House deliberations that a national site survey of the kind mandated in the Senate bill should be included in any waste bill, and that that survey should be required to be completed prior to the time sites are chosen for characterization.

That would push back the choice of sites for characterization approximately 2 years in our understanding. I understand that that may be politically an extremely hard goal to meet in the Congress, that there is enormous pressure on key Members of Congress and key members of the administration to accelerate the repository deadline.

In that case I would recommend that the deadlines currently in H.R. 3809 be clearly understood by the committee to be in the form of congressional guidelines for timely action, but that instead of having a siting process built on mandatory deadlines whether or not adequate information at each phase of the process was available, the committee should consider a siting process based upon process requirements that have to be met prior to the next phase of the process beginning, so that it's clear exactly what information DOE must have in hand before it chooses sites for characterization; and it's further clear what information DOE and the public has to have in hand before a site is selected and before NRC can issue an application for a site.

I think then the presence of guidelines would not be quite as threatening to the integrity of the program as a whole.

There are two more areas I wanted to address. One is the defense waste area. You have had a long discussion of the question of whether or not defense wastes should be comingled with civilian wastes, with commercial wastes, in any repository.

With all due respect, we feel that that is not perhaps the most important question in connection with this bill. The most important question is whether or not there is one unified siting program with unified rules which is going to site any licensed repository.

I think it is fair to say that the members of the Sierra Club and the people who are concerned, the concerned public and States, are concerned that they not be placed in double jeopardy by two siting programs with different sets of criteria, and that even if a military-only waste repository was the vehicle of choice by the Federal Government at some point down the line we would feel somewhat reassured if that repository was sited by the same rules as a commercial repository would be sited.

Mr. OTTINGER. There is no way of guaranteeing that, even if we put it in the bill.

Mr. YEAGER. I realize that. But a statement of congressional policy in that regard would be very helpful and constructive, particularly since the Senate Armed Services Committee has gone as far as it has already in agreeing that States should have a unified goal with regard to all licensed repositories.

The last item I want to address has to do with the so-called McClure amendment which was added to the Senate bill at the end of the deliberations in the Senate on April 29. I am sorry Mr. Ritter is not still here, because I feel some of his discussion in connection with that bill I would have sought to have corrected in the record.

For instance, I do not feel it is true that the French have had the technology in place which is asked for under the various State laws that would be struck down by the McClure amendment. Those State laws—and the Sierra Club has a particular interest in this, because we have joined in the suit with more than 20 other States and the State of California to defend their siting law before the Supreme Court.

That State siting law asks that an assured and safe demonstrated program be in place for the disposal of nuclear wastes. It does not ask that a solidification technology such as that in France be in place, or a congressional assurance that we will have a program at some future date be in place. It did not ask an assurance of the kind in the McClure amendment, that could be attached to a NASA authorization that says, for legal purposes, we have a man in the moon.

That is not what the State of California was looking for and I do not believe it is what the American public was looking for. What we were looking for was the assurance that would be stipulated by the existence of a program in a licensed repository that nuclear wastes were indeed being taken care of.

I also think it is important to note that the nature of the McClure amendment and the way in which it was inserted in the Senate bill are not worthy of an issue of the kind of seriousness which that imposes. It was presented as a technical amendment on the Senate floor. Only one other Senator to my knowledge saw it before it was inserted in the bill, and it has never been debated in either house of Congress.

I would urge the House to take the strongest possible position against that amendment when it comes to conference with the Senate.

Thank you very much.

[Testimony resumes on p. 557.]

[The prepared statement of Mr. Yeager follows:]

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TESTIMONY OF

BROOKS YEAGER, WASHINGTON REPRESENTATIVE,

SIERRA CLUB

BEFORE THE HOUSE SUBCOMMITTEE ON

CONSERVATION AND POWER

ON LEGISLATION RELATING TO DISPOSAL OF NUCLEAR WASTE

JUNE 10, 1982

Chairman Ottinger, Members of the Subcommittee on Conservation and Power:

I am grateful for the opportunity to appear before you today to present the views of the Sierra Club on the nuclear waste legislation pending before this Subcommittee. Joining me today are Renee Parsons, Washington Representative of Friends of the Earth, and Michael Faden, Legislative Counsel for the Union of Concerned Scientists. In an effort to present a comprehensive approach to this issue from the point of view of the environmental groups who have been working on it for some time now, each of us has directed our comments at a different aspect of the nuclear waste problem. I intend to focus my own comments on the permanent repository siting program.

As you are aware, the organizations we represent here today have worked steadily throughout the 97th, and in some cases, previous Congresses, to encourage the passage of comprehensive legislation to provide a statutory basis for the federal government's ongoing nuclear waste management program. During the last Congress, for example, the Sierra Club, the Environmental Policy Center, and other organizations worked to forge compromises necessary for the enactment of H.R. 8378, the legislation reported by the Interior Committee and the (then) Interstate and Foreign Commerce Committee, which passed the House on December 3, 1980. Although H.R. 8378 failed of final enactment, it has been reintroduced this Congress as H.R. 3809, and the Sierra Club and the Environmental Policy Center testified in general support of that bill before Chairman Udall's Subcommittee on Energy and Environment on June 23 of last year.

Since that day almost a year ago, we have worked continuously in an effort to assist in the crafting of waste legislation which would lay a foundation for a safe and environmentally sound nuclear waste management program - the only kind of program, in our view, which holds out any hope in the successful permanent disposal of high level nuclear waste. We have specifically supported a legislative approach which is aimed clearly at establishing a safety-first, technically thorough program for the establishment of licensed geological repositories for the final disposition of both high level waste and commercial spent fuel.

At the same time, we have opposed new and unnecessary federal commitments in other areas of waste management, including the temporary storage of utility-generated spent fuel. We believe that the need for a safe, adequate federal program for the permanent disposal of nuclear waste is a broadly perceived national priority. We find no such national consensus with regard to the appropriate federal role in the interim storage of commercial spent fuel.

Precisely because we regard the permanent repository siting program as the centerpiece of any successful national waste management strategy, we note with concern the view taken by some proponents of nuclear waste legislation, that any nuclear waste bill is better than nothing. In the context of the all-important siting program, the choice is not between Congressional action and nothing at all, but between a Congressionally mandated nuclear waste program, and an ongoing, if ad hoc DOE program which is currently investigating potential permanent nuclear waste storage sites in six states and conducting surveys and investigations related to the nuclear waste management program in many others.

The real question is whether, in the course of this ongoing geological siting program, the Department of Energy and its contractors are doing a good job, a job which will, in the end, produce a safe, publicly acceptable system of geological repositories for the permanent disposal of nuclear waste. The answer to that question is quite significant in terms of the goal of any Congressional action on the nuclear waste issue: for if DOE'S program is not adequate to meet this objective, the goal of Congressional action should be to rectify the waste program, to set it on a more sound footing, with a higher chance of ultimate success, and not, at all costs, to ratify the mistakes which are already being made.

THE STATUS OF THE CURRENT DOE REPOSITORY SITING PROGRAM

In our view, the current federal nuclear waste management program, and more particularly, the National Waste Terminal Storage program, which is charged with the task of siting and constructing permanent geological repositories, is a program in which the DOE bureaucracy and its contractors, under intense pressure from key members of Congress and the Administration, are even at this moment wresting defeat from the jaws of victory. Unsatisfied by the technically conservative and institutionally thorough approach to repository siting set by the previous administration, DOE's new managers have chosen to ignore technical uncertainties and to override institutional constraints in an effort to site the first permanent repostitory as quickly as possible. This new emphasis in DOE's program, while it may be welcome to some, is one which we believe threatens both the integrity and the ultimate success of the permanent disposal effort.

What is the evidence of this new attitude? The Department has not, it is true, amended any of its major nuclear waste policy statements in such a way as to indicate that a profound change in strategy is under way. However, if we compare the Department's policy position as enunciated in 1980 in the so-called "Waste Confidence Proceeding" (Statement of Positions of the U.S. Department of Energy, In the Matter of Proposed Rulemaking on the Storage and Disposal of Nuclear Waste, PR-50,51 (44 FR 61372)) before the Nuclear Regulatory Commission, with its more recent statements and activities in the field, it quickly becomes apparent that the technically conservative approach that was being followed by the previous administration has been relegated to the world of Congressional testimony and public presentations.

•In testimony last October 1, before the Senate Committee on Energy and Natural Resources, Dr. Shelby Brewer, the Assistant Secretary for Nuclear Energy, was asked whether a timetable calling for an application for a construction authorization for a permanent repository by 1988 was feasible. Dr. Brewer replied that it was. However, according to the detailed time schedules submitted to the NRC by DOE under the title "Summary Logic Network Activities Leading to Geologic Repository Operation," a 1988 target date for applying for a construction authorization would require the elimination of the entire 45 month period required for in-depth site characterization at proposed repository sites. (Document submitted for the record).

•In the same testimony, Dr. Brewer was asked whether, in view of the discrepancy between the schedule he had indicated was feasible (a 1988 target date for an application for a construction authorization) and that required by S.1662 (NRC decision on construction authorization by Jan 1, 1988), it would be possible to "streamline the regulatory and legal procedures and meet the timeframes set forth in

S.1662?" He replied: "I would hesitate to give you a negative answer, Senator."

*Although DOE's NEPA implementation plan, as presented to the NRC, calls for a "tiered" approach including the preparation of a full EIS at the time when a prospective site is "banked" for in-depth characterization as a potential repository, the Department has recently refused to guarantee any such formal environmental review prior to site characterization in the six states where it is actively surveying potential sites.

*Although DOE indicated to NRC that its geological surveys in the Salina salt formations in New York and Ohio had "identified study areas that appear to be geologically favorable for more detailed field investigations," a 1981 letter from the Department to Senator John Stennis indicates that "we have made no plans to reactivate Salina Basin studies." (Document submitted for the record).

*Although granite and associated crystalline rock formations are mentioned in much of DOE's literature as potentially promising repository media, the 1981 letter to Senator Stennis characterizes the Department's granite studies as being "in the early phases of reviewing the geologic literature" and shows a two-year delay in the projected date for specific site characterization in granite as compared with earlier schedules.

*In conversations we have had with responsible state officials in potential host states, echoed in testimony already offered to this Committee, the officials almost invariably refer to continued frustrations with DOE's uncooperative attitude towards them, the unwillingness of Department officials to supply them with the information they need to evaluate the progress of program efforts in their state, and the general insensitivity of DOE and contractor representatives to legitimate requests for state, local, and public participation in the siting process.

[illegible] DOCUMENT AVAILABLE

It is difficult to draw detailed conclusions about the status of the DOE waste program and the character of the evolving Reagan Administration nuclear waste policy from such fragmentary evidence, particularly in the absence of any comprehensive policy statement on the part of the new Department. The broad outline, however, is both clear and unsettling. DOE has apparently adopted many features of an attitude long present in nuclear industry circles: that this problem has been "studied to death," that programmatic environmental safeguards should be viewed as so many obstacles to progress to be done away with for the convenience of the program managers, that speed is more essential than certainty, that the pertinent geological and geophysical questions have been answered satisfactorily, making wider site studies and further research superfluous, and that getting a hole dug in the ground at the earliest possible date will finally resolve the American public's growing doubts about our ability to permanently dispose of nuclear waste.

If, in fact, this outline represents even an approximation of the evolving attitude at the upper levels of the Department, the prospects for a successful geological program are unfortunately bleak. DOE apparently wishes to return to the days before the Lyons, Kansas fiasco, when states, local communities, and the general public were blissfully ignorant of the perils of nuclear waste, or the problems and doubts associated with its final disposal. But such a return to the good old days is simply not possible. Not only state and local governments, but also many members of the public, have an increasingly sophisticated understanding of the implications of the waste disposal problem, and they understand that there is no solution yet developed which is without serious environmental risks. They understand with clarity that a permanent solution involves putting vast quantities of spent fuel and high-level waste in someone's back yard, and they share a legitimate concern that the job be done right, the first time, that all significant technical questions be answered satisfactorily, and that all appropriate environmental and licensing tests be met before any irrevocable disposal decisions are made.

Even many people who are prepared to accept the government's assurances that the technical questions regarding geologic disposal can be resolved are not correspondingly convinced that the government will be able to make the long-term, conservative effort necessary to find and license a safe and acceptable site for such a repository. The history of the past government siting efforts, and especially of Project Salt Vault, the Atomic Energy Commission's ill-starred attempt to site a repository in an abandoned salt mine in Lyons, Kansas, is a major reason for popular hesitancy on this question. In that case, a site chosen prematurely and against the advice of the state geological survey proved inadequate and caused lingering public doubt and controversy that set the geological program itself back almost five years. In our opinion, another unfortunate siting choice such as that could cause a firestorm of public questions and severely damage the government's ability to site any waste repository during the foreseeable future.

Given the past record of federal efforts in managing nuclear waste, it is naive to expect the public to accept the uncertainties that are inevitably present in any proposed "solution" to the waste problem unless it is clear that the institutional process will provide an accurate and straightforward test of the safety and validity of the program. To the extent that proposed legislation attempts to short-circuit key environmental and licensing reviews, both the public's confidence and the integrity of the process itself will inevitably be eroded.

Neither can the public be expected to accept the mere legislative declaration that all relevant issues have been resolved, as a substitute for the tangible and methodical research and siting program which is clearly necessary. Proposed legislation which ignores this need and instead formulates a "solution" based on impossibly optimistic siting schedules and Panglossian legislative declarations that Congress has somehow made the problem go away place the entire federal waste management effort at a serious disadvantage.

THE GOALS OF CONGRESSIONAL ACTION

In this context, we believe the goal of Congressional action should be the establishment of a statutory basis for DOE's waste management efforts which forces DOE to take a technically conservative, safety-first approach to the process of siting and constructing permanent repositories for high level waste and commercial spent fuel.

*The schedule for repository site selection should be structured in such a way as to allow the resolution of remaining technical questions and to assure that the prospective repository sites are chosen through a methodical and careful process, rather than as a result of bureaucratic convenience or political necessity.

*Congress, and this Committee, should mandate the fullest possible cooperation and consultation between the Department, affected state and local governments, and the public.

*The necessary environmental reviews should not be restricted or eliminated, but rather should be undertaken with utmost seriousness in an attempt to gradually build public confidence in the safety of the program.

*The siting process itself should be a coherent, unified, national process structured to include both commercial spent fuel and defense waste.

*States should have the opportunity to challenge federal decisions in siting nuclear waste facilities within their borders, and such challenges should only be overturned by a Joint Resolution passed by both houses of Congress and signed by the President.

*New federal commitments to the interim storage of utility spent fuel should be avoided or restricted to cooperative programs for the licensing of new technologies for on-site storage, such as dry storage casks.

*Long term storage proposals, such as the monitored retrievable storage facility, should not be allowed to become a substitute for an effective geological program.

DETAILED COMMENTS ON ASPECTS OF PENDING LEGISLATION

1. SITING SCHEDULE FOR FINAL REPOSITORIES. In our view, it is highly unlikely that the Department can meet the deadlines in the repository siting schedules in any of the legislation currently before the Committee, or in the legislation which passed the Senate at the end of April. Setting statutory deadlines which are impossible to fulfill can only act to undermine the credibility of the program in the eyes of the public. More particularly, setting the date for which sites must be chosen for characterization at a year after enactment implicitly ratifies the choice of sites with which DOE is already familiar - Hanford, Nevada Test Site, and one of three or four sites in bedded or dome salt. I think few would object to the choice of these sites if it were clear that they had been selected through a rigorous comparative evaluation. The simple fact, however, is that two of them are on the list for the reason that they are owned by the federal government and already host nuclear activities.

In testimony before the Joint Hearing of the Senate Energy and Environment Committees, James F. Devine, the Assistant Director of the U.S. Geological Survey, confirmed this concern: "From a technical viewpoint, we believe the schedules proposed in this bill would be extremely difficult to meet with a sufficient degree of data to have a high degree of confidence that the selected sites would be licensable in the end."

We have supported a more methodical site selection system, starting with a requirement for a national site survey similar to that in S.1662. Such a survey should be based on detailed statutory requirements and should be followed by the choice of sites for characterization in various media. Such a requirement could be expected to add two years to the site selection timetable, but would act correspondingly to allay any suspicions that sites had been chosen by a haphazard or political process.

In the absence of such a site survey, we would urge the Committee to clarify the nature of the deadlines set in legislation. Such deadlines should be viewed as Congressional guidance - not as absolute limits on each phase of the siting program. The search for an acceptable repository site involves a complex effort to gather the necessary technical, geological, and hydrological data at each stage so that the next stage may proceed on a firm footing. Decisions made prematurely at the early stages of this effort, or decisions forced by unyielding deadlines, may return to haunt the program in unpredictable and damaging ways later on. Therefore, it should be clearly stated that the process requirements made by the legislation - the information required to be in hand before each new phase of the selection process is undertaken, are primary requirements which take precedence over any mandated deadlines.

2. IMPLEMENTATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT. Both the Senate bill and legislation already reported from other House Committees contain a particularly troublesome restriction on the application of NEPA to the site selection process. In each case, an environmental assessment with stipulated requirements is substituted for full compliance with NEPA at the point at which a site is selected for in-depth site characterization.

As has been pointed out in earlier testimony by the State of Utah, among others, full and early compliance with NEPA is one of the few ways in which potential repository states can assure themselves that a site chosen in their state has been selected through a technically thorough process. It is also the only way in which a potential host state can get an early look at the potential impacts of siting a repository at such a site. Impacts on local communities caused by repository construction and operation, and the transportation of vast quantities of high level waste and spent fuel to the site of the proposed repository can and should be examined early in the siting process. The requirement for a formal environmental review in compliance with NEPA prior to in-depth site characterization would afford states and localities this much-needed early opportunity, as well as giving affected parties the opportunity to examine the effects of the characterization process itself.

3. DEFENSE WASTE. Another key issue with regard to both the role of NRC and the states is whether or not military wastes are to be included in the same siting process as civilian wastes for the purpose of final geologic disposal.

More than 80% of the total volume of nuclear waste with levels of radioactivity high enough to require permanent isolation from the environment originates from DOE defense activities. More than 75,000,000 gallons of reprocessed defense waste are currently stored in temporary steel tanks at federal sites in three states - Idaho, Washington, and South Carolina. This ad-hoc storage system is only marginally safe - at least 400,000 gallons of high level waste have leaked from decaying holding tanks at Hanford alone.

S.1662, as passed by the Senate, partially resolves the defense waste problem. As amended by the Simpson-Hart Amendment, which reflected the views of the Environment and Public Works Committee and which we supported, the Senate bill mandates the inclusion of defense wastes in the repository siting program unless the President finds that a military waste-only repository is required. Such a finding would have to be based on the report on the disposition of military waste currently required in law by the Jackson Amendment to last year's DOE National Security Authorization. In any case, S.1662 requires that any repository required to be licensed by the NRC, including permanent repositories for defense waste required to be licensed under Sec. 202 of the Energy Reorganization Act of 1974, be subject to the state consultation and concurrence provisions outlined in the bill, including the right of states to object to Congress concerning the designation of a site within its borders. This last requirement had broad support within the Senate, including from key members of the Senate Armed Services Committee, which did not object to such state provisions in floor debate.

Although the Armed Services Committee did object to the requirement for a Presidential decision on whether to include military waste in the siting rules of S.1662, its objection was overwhelmingly rejected by the full Senate. Much of the Armed Services argument was based on the need to avoid making a premature decision on whether military and commercial wastes should be commingled in the same repository. However, that it is clearly not the question of most importance for this Committee. The real question is whether there is any valid reason not to include military waste in the same repository siting system established by the bill for commercial waste. Whether or not the wastes actually end up in the same repository is far less important than establishing a unified siting program with no double standards for defense waste, and insuring that no state will have to face the kind of double jeopardy in which the military might decide to make use of a repository site that had previously been rejected by a civilian program operating under more stringent groundrules.

The objective of siting all high level nuclear waste repositories by a single set of ground rules could be accomplished, without prejudging whether defense and commercial wastes should be physically commingled, by a simple requirement that all licensed repositories be sited according to the siting and state review rules established by the bill.

4. LICENSING REQUIREMENTS FOR FINAL REPOSITORIES. The licensing process, more than any other element of the waste management program, will be the crucible where federal decisions and siting choices will be tested and public confidence in the waste program and in a particular site and design will be either reinforced or broken.

It is fortunate, therefore, that the licensing provisions included in Mr. Broyhill's draft legislation which was circulated last October have been dropped from the more recent discussions of the Subcommittee. Since these provisions are not currently pending before the Subcommittee, I will not comment on them in detail, except to say that their adoption in law would eliminate any possibility that a licensing procedure so amended could provide a convincing demonstration to the public at large of the reasons for confidence in a particular site, repository design, or the DOE program in general.

In testimony last October 7 before the House Subcommittee on Energy Research and Production, I submitted detailed comments on similar licensing proposals which were contained in legislation before that Committee. I would be glad to offer those comments for the use of this Subcommittee if they would prove helpful in its deliberations.

5. THE 'McCLURE AMENDMENT' AND THE RESOLUTION OF THE WASTE PROBLEM. I would like to close my testimony today with a brief discussion of a new and controversial issue which arose in connection with the floor consideration of S.1662. In the waning hours of that debate, Chairman McClure inserted an amendment in the Senate bill which will, if enacted into law, have consequences of the most sweeping kind, not only for the nuclear waste program, but for the exercise of traditional state prerogatives in the regulation of energy facilities generally.

Although the McClure Amendment was presented as a "legal and clarifying amendment," and was inserted into the bill unread and unexamined, it would override the energy facility siting laws of at least five states, and would force immediate judgments favoring the nuclear industry in the so-called "Waste Confidence Proceeding" before the Nuclear Regulatory Commission and two court cases, one pending before the Supreme Court.

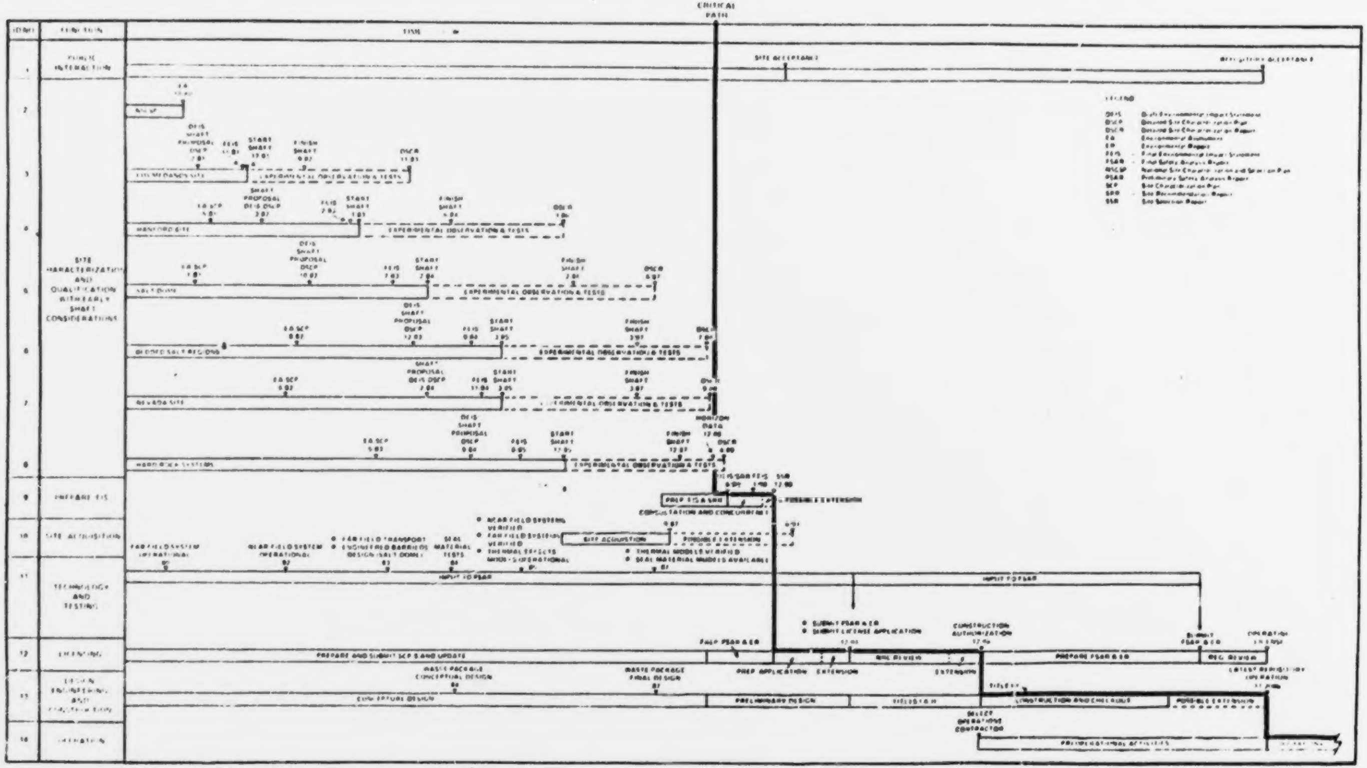
The Sierra Club has a particular interest in the McClure Amendment because, along with over 20 states and several other public interest organizations, we are participants in the lawsuit currently pending before the Supreme Court (Pacific Legal Foundation v. State Energy Resources Conservation and Development Commission, 659 F. 2d (9th Circuit 1981)) in which the State of California is defending a six-year-old law which restricts the siting of new nuclear powerplants within the state until such time as the federal government puts in place a demonstrated solution to the disposition of nuclear waste.

The McClure Amendment simply declares that the passage of S.1662 solves the nuclear waste problem, and that the Congressional declaration of such a solution should be construed in any federal, state, or local court or proceeding to satisfy any requirement for the safe disposal of nuclear waste.

Aside from being absurd on its face, such a declaration smacks of the old children's game: "If I say it three times, it's true." It is the equivalent of a legislative declaration attached to a NASA Authorization that, for all legal purposes, we now have a man on Mars. Had it been introduced and discussed in the light of day, there is a good possibility that it would have been laughed off the Senate floor.

Yet I would urge this Committee, and the House Conferees on this legislation, to view the McClure Amendment with great seriousness, because it has enormous implications for the traditional obligations of states to regulate energy development and provide for the protection of the health and safety of their citizens. The states which passed the siting laws which would be bulldozed away by this hasty legislative handiwork - California, Maryland, Oregon, Connecticut, and Maine, at the minimum, were concerned to restrict the further siting of nuclear powerplants until such time as a demonstrated, safe method of disposing of nuclear waste was put in place by the federal government. No declaration of Congressional policy, nor any mere legislative solution, no matter how promising it may seem, can substitute for the actual development of that program.

In its consideration of nuclear waste legislation, I would urge this Committee to eliminate any language which would have the effect of undermining the obligation of the courts, the NRC, or the individual states to assure themselves, in the appropriate context, that the nuclear waste disposal problem has indeed been resolved. I would also urge the House, in convening any conference with the Senate on this issue, to make its first priority the elimination of the McClure language from any further consideration by the Congress.


CRITICAL PATH
FUNCTION
TIME
PUBLIC INTERACTION
SITE ACCEPTANCE
SITE CHARACTERIZATION AND QUALIFICATION WITH EARLY SHAFT CONSIDERATIONS
LEGEND
DEIS SHAFT PROPOSAL DSCP
FEIS
START SHAFT
FINISH SHAFT
DSCR
LOS MEDANOS SITE
EXPERIMENTAL OBSERVATION & TESTS
EA SCP
HANFORD SITE
SALT DOME
BEDDED SALT REGIONS*
NEVADA SITE
HARD ROCK SYSTEMS
MONITOR DATA
PREPARE EIS
PREP EIS & SRR
POSSIBLE EXTENSION
CONSULTATION AND CONCURRENCE
SITE ACQUISITION
TECHNOLOGY AND TESTING
FAR FIELD SYSTEM OPERATIONAL
NEAR FIELD SYSTEM OPERATIONAL
FAR FIELD TRANSPORT
ENGINEERED BARRIERS DESIGN (SALT DOME)
SEAL MATERIAL TESTS
NEAR FIELD SYSTEMS VERIFIED
FAR FIELD SYSTEMS VERIFIED
THERMAL EFFECTS
THERMAL MODELS VERIFIED
SEAL MATERIAL MODELS AVAILABLE
INPUT TO PSAR
INPUT TO FSAR
LICENSING
PREPARE AND SUBMIT SCP'S AND UPDATE
PREP PSAR & ER
SUBMIT PSAR & ER
SUBMIT LICENSE APPLICATION
PREP APPLICATION
EXTENSION
NRC REVIEW
CONSTRUCTION AUTHORIZATION
PREPARE FSAR & ER
SUBMIT FSAR & ER
REG. REVIEW
OPERATION LICENSE
DESIGN ENGINEERING AND CONSTRUCTION
WASTE PACKAGE CONCEPTUAL DESIGN
CONCEPTUAL DESIGN
WASTE PACKAGE FINAL DESIGN
PRELIMINARY DESIGN
TITLE II
TITLE III
CONSTRUCTION AND CHECKOUT
POSSIBLE EXTENSION
LATEST REPOSITORY OPERATION
SELECT OPERATIONS CONTRACTOR
PREOPERATIONAL ACTIVITIES
OPERATION

*Bedded salt regions other than Los Medanos.

Figure III-3. Summary Logic Network Activities Leading to Geologic Repository Operation (Extended duration for characterization, licensing, and construction)

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Department of Energy
Washington, D.C. 20585

DEC 2 8 1981

Honorable John C. Stennis
United States Senate
Washington, D. C. 20510

Dear Senator Stennis:

Thank you for your letter of December 2, 1981 regarding the Department's effort to develop the appropriate technology to dispose of our nation's high-level nuclear waste.

In your letter, you have requested that we provide you with the time required to complete a national site program that would bring potential Salina Basin salt formations and granitic formations to a pre-site characterization phase. At this time, we are in the early phases of reviewing the geologic literature necessary to screen granitic formations in 17 states in order to determine those formations with the potential for future studies. Our schedule at this time calls for those studies to reach a site characterization phase (exploratory shaft) in fiscal year 1988. At this time, we have made no plans to reactivate Salina Basin studies. We, therefore, do not have all the data immediately accessible to answer your specific request.

We hope that this reply will serve as an interim response to your questions until we are able to develop the information necessary to respond to your request. We anticipate that we will require another three-to-four weeks to answer you more completely.

Thank you for your interest in this vital national issue.

Sincerely,

Robert C. Odle, Jr.
Assistant Secretary for
Congressional, Intergovernmental
and Public Affairs

Mr. OTTINGER. Thank you.

STATEMENT OF RENEE PARSONS

Ms. PARSONS. My name is Renee Parsons and I am a legislative representative with the Friends of the Earth. My comments today will specifically deal with the subject of interim storage of spent fuel and specifically some of the comments made by industry here earlier.

In 1981, with the new administration trying to cope with huge budget deficits, the administration redirected the Department of Energy's spent fuel program away from a Federal commitment to store spent fuel and instead to assist facilities to develop alternative technologies for sites. The administration has cited dry cask as one promising option which according to the NRC is licensable.

Industry manufacturers have such casks currently available for such use, and the Canadians have been using similar casks since at least 1979. In November 1981 the NRC, in response to questions from Senator Gary Hart, indicated the Office of Nuclear Materials Safety and Safeguards was prepared to review license applications received for dry storage. And today we have heard the NRC testify that those casks can be licensed in less than 2 years.

Dry cask storage is not an exotic idea, but a current technology ready to be utilized. The recent Office of Technology Assessment report stated that by using casks at reactors "it is theoretically possible that all necessarily additional interim storage capacity could be provided at reactor sites before existing basins are filled." In other words, where there is a will there is a way.

The DOE projection for 1986—the utilities project the sky will fall—indicate an additional storage requirement of only 120 tons. That assumes no transshipment, maximum reracking and maintenance of full core reserve.

In December 1981 the NRC estimated that if transshipment was utilized necessary capacity would drop to 100 tons in 1987. A 120-ton requirement for 1986 should not be the basis on which to establish a major new Federal program. If indeed there is a need for additional storage capacity at that time, the subcommittee should consider the use of casks to provide for such emergency capacity.

On December 31, 1981, industry representatives as parties to the NRC proceeding indicated—the Waste Conference proceeding—indicated their flexibility on the Federal Government's role on spent fuel storage. In comments submitted to the NRC, scientists and engineers for Secure Energy, for example, said:

> We definitely agree that AFR storage is only one of several possible modes of interim storage and that others may be superior. We see no reason why adequate local storage cannot be provided for a relatively short time scale, on the order of 100 years, at all licensed nuclear plants and in adequate time.

In addition, as Mr. Markee cited earlier, 57 utilities refused DOE's offer to enter into cooperative programs. It is now claimed that certain reactors may be forced to curtail operations in 1986 when their pools become full. Yet these same utilities have had their collective fingers crossed since 1977 in the hopes the Federal Government would once again come to their rescue.

Responsible utility management would not have gambled if indeed reactor shutdown was threatened, but rather would have planned in advance, as the Tennessee Valley Authority has done. It is interesting to notice that Carolina Power & Light, one of the most vocal industry members, indicated on their 10k to the Securities and Exchange Commission that the company plans to provide for spent fuel storage capability within its own facilities into the late 1990's.

While the interim storage program in H.R. 3809 would include an onsite program, the use of Federal facilities for the storage of commercial spent fuel would in our opinion still constitute a Federal AFR program. While shifting potential sites may have some political advantage, the principle of establishing a Federal AFR program would remain intact.

Federal AFR, such as that one in the draft document of May 26, would still put significant quantities of high-level wastes on the Nation's highways. While the 2,800 tons may be an attempt to restrict the use of Federal facilities, clearly such a restriction is at best only temporary.

The DOE does not estimate a need for 2,800 tons of capacity until some time between 1991 and 1992. It seems premature to authorize a program in 1982 for possible needs in 1991. Further, once a Federal AFR program is authorized there is no incentive for utilities to attempt to retain their spent fuel on site.

We are especially concerned about sections of the May 26 draft which contain expedited licensing procedures and restrictions on issues to be raised on onsite storage and would exempt Federal AFR facilities from NRC licensing and full NEPA application. Such exemptions and fast-tracking are unnecessary and shortsighted.

While intervenors have perhaps been an annoying presence to the industry, their overall effect of preventing onsite expansion has been negligible. As mentioned earlier, the Commission has yet to rebuff any utility application for onsite expansion.

Adopting licensing shortcuts of any kind really reinforces the public perception that the nuclear industry cannot exist without special congressional favors. The NEPA NRC licensing exemptions for Federal facilities cannot be justified. The role of NEPA in NRC has historically been a major component to assure the effect of public and State governments, a vehicle for participation in the Federal Government's decisionmaking.

There do not appear to be any national security issues involved in using the pools at Federal facilities to warrant either exemption. Major structural changes to existing pools will probably be necessary in order to accommodate the different sized commercial spent fuel, and as such in our opinion will constitute a major federal action that would require an EIS.

We have heard much today about the military waste issue jeopardizing passage of nuclear waste bills, and I might observe that the interim storage of spent fuel represents such a threat to final passage also.

[The prepared statement of Ms. Parsons follows:]

FRIENDS OF THE EARTH
530 7TH STREET, S.E., WASHINGTON, D.C. 20003
(202) 543-4312

Testimony of

Renee Parsons
Legislative Representative
Friends of the Earth

before the

Conservation and Power Subcommittee
U.S. House of Representatives

June 10, 1982

Friends of the Earth is pleased to have an opportunity to address the Conservation and Power Subcommittee on the issue of radioactive waste.

Friends of the Earth is an international environmental organization with almost 200,000 members in over 28 countries and 40,000 members in the United States.

While we support the establishment of a permanent geologic repository program for the storage of high level radioactive waste, we do have serious reservations about those types of facilities that are "interim" or "short-term". Such temporary facilities, examples of the "dig a hole in the ground" philosophy, merely serve to detract efforts from the goal of a permanent repository program.

My comments today will specifically deal with the subject of interim storage of commercial spent fuel.

The Federal government's role in the storage of commercial high level spent fuel has been a major issue of debate since at least 1977. In 1977, when President Carter reaffirmed President Ford's earlier ban on the reprocessing of commercial spent fuel, the Administration's response to industry's complaints was to propose the Spent Fuel Policy Act which would have established a Federal program to store commercial spent fuel at Away-From-Reactor (AFR) facilities. The potential sites for the AFR program have been West Valley, New York; Barnwell, South Carolina and Morris, Illinois. The Department of Energy continually presented flawed statistics of reactors whose pools were, it was alleged, nearly full and on the verge of shutdown.

As a result, the Department was unable to convince a skeptical Congress that a Federal AFR program was necessary.

That is not to deny that existing reactor pools have, in fact, continued accumulating spent fuel. Most utilities have already "reracked" their pools at least once to increase their storage capacity with a number of utilities reracking a second time. As the utilities applied to the NRC for permission to rerack, the public and state often became parties to the pending proceeding. At no time, however, has the Commission denied a utility application to rerack.

By 1981, with a new Administration trying to cope with huge budget deficits, a Federal AFR program was not a priority as the Reagan Administration put together its new DOE budget -- in spite of the Administration's support of nuclear power. The Administration redirected DOE's spent fuel program away from a Federal commitment to store spent fuel and to instead assist utilities to develop alternative technologies for use at-reactor sites. The Administration has cited storage in dry casks as one promising option which, according to the NRC, can be licensable by 1986. Industry manufacturer, Brooks & Perkins, has such casks currently available for immediate use and the Canadians have been using similar casks since at least 1979. In November, 1981, the NRC, in response to questions by Senator Gary Hart, indicated that the "Office of Nuclear Material Safety and Safeguards is prepared to review license applications received for dry storage." Dry cask storage is not an exotic idea but is a current technology ready to be utilized. The recent Office of Technology Assessment report, "Managing Commercial High Level Radioactive Waste", cites the DOE prediction that dry casks can be licensed for at-reactor storage "in about 4 years". By using casks at-reactors, OTA further states that "it is theoretically possible that all necessary additional interim storage capacity could be provided at reactor sites before existing basins are filled." In other words, where there's a will, there's a way.

As part of the NRC's on-going waste confidence proceeding on spent fuel, the Department of Energy's General Counsel on March 27, 1981, submitted to the NRC, as part of that proceeding, a description of the alternative options identified by the DOE for at-reactor storage as well as a revision of DOE's projections of spent fuel requirements. The DOE projections for 1986, the year the utilities predict the sky will fall, indicates additional storage requirements of only 120 tons - that assumes no transshipment between reactors, maximum reracking, and maintenance of full-core reserve. In November, 1981, the NRC estimated that if transshipment was utilized, necessary capacity would drop to 100 tons in 1987. A 120 ton requirement for 1986 should not be the basis on which to establish a major, new Federal program. If indeed there is a need for additional storage capacity at that time, the Subcommittee should consider the use of the casks to provide for such "emergency" capacity.

On December 21, 1981, industry representatives, as parties to the same NRC proceeding, indicated their flexibility on the Federal government's role on spent fuel storage. In comments submitted to the NRC, the Scientists and Engineers for Secure Energy, said:

> "We definitely agree that AFR storage is only one of several possible modes of interim storage and that others may be superior. We see no reason why adequate local storage cannot be provided for a relatively short-time scale (on the order of 100 years) at all licensed nuclear plants and in adequate time."

The Atomic Industrial Forum stated:

> "We perceive no practical obstacles, acted upon in a timely and rational way, to the expansion of existing on-site storage. As to dry storage, we agree with DOE that such is technically feasible and could be utilized if needed, ...we know of no reason why they could not be licensed."

The Consolidated Group #4 which includes GE, Bechtel, EEI and five utilities, stated:

> "Even without Federal AFRs, however, adequate spent fuel storage capacity can be made available. In addition, technologies such as dry storage and rod compaction offer the potential to further enhance storage capability."

In addition, in May, 1981, the Department offered 57 utilities an opportunity to enter into a cooperative program to store their spent fuel at-reactor site using alternative technologies. When no utility responded, the Department again offered a cooperative program to the twelve most hard-pressed utilities. Again, while the utilities were pleading for the relief that only a Federal AFR program would provide, only TVA had the foresight to accept the DOE's offer.

It is now claimed that certain reactors may be forced to curtail operations in 1986 when their pools become full. Yet these same utilities have had their collective fingers crossed since 1977 in the hopes that the Federal government would once again come to their rescue. Responsible utility management would not have gambled if indeed reactor shutdown was threatened but rather would have planned in advance as the TVA has done. It is interesting to note that Carolina Power & Light, one of the most vocal utilities on the AFR issue, indicated in their 10K statement to the Securities and Exchange Commission on March 17, 1982 that:

> "The company plans to provide for spent fuel storage capability within its own facilities into the late 1990's."

While the Interim Storage Program in HR 3809 would include an on-site program, the use of Federal facilities for the storage of commercial spent fuel would, in our opinion, still constitute a Federal AFR program. While the Barnwell, Morris and West Valley sites would appear not to be potential sites with the language in the

May 26th draft, the AFR locations would merely shift to the States of Washington, Nevada, Idaho and South Carolina bringing additional states into the debate. The States of Nevada and Washington are already prime targets for every imaginable type of waste repository including an unlicensed t&e facility, a possible MRS facility and a permanent geologic repository. The State of Idaho, meanwhile, is anticipating the day when thousands of gallons of wastes from Idaho National Labs will be moved out of Idaho to the WIPP facility in New Mexico. The State of South Carolina, with a low level waste facility, is especially desirable from industry's point of view because of the Savannah River Plant's proximity to the Barnwell reprocessing facility.

While such a shift in potential sites may have some political advantages, the principle of establishing a Federal AFR program would remain intact. A Federal AFR, such as outlined in the draft document of May 26th, would still put significant quantities of high level waste on our nation's highways. While the 2800 ton limit may be an attempt to restrict the use of Federal facilities, clearly such a restriction is at best only temporary. The DOE does not estimate a need for a 2800 ton capacity until sometime between 1991 and 1992. It would seem premature to authorize a program in 1982 for possible needs in 1991. Further, once a Federal AFR program is authorized, there is no incentive for utilities to attempt to retain their spent fuel on-site.

The May 26th draft contains expedited licensing procedures, restrictions on issues to be raised for on-site storage and would exempt Federal AFR facilities from NRC licensing and full NEPA application. Such exemptions and fast-tracking are unnecessary and short-sighted. While intervenors have perhaps been an annoying presence to the industry, their overall effect of preventing on-site expansion has been neglible. As mentioned earlier, the Commission has yet to rebuff any utility application for on-site expansion. Adopting licensing short-cuts of any kind merely reinforce the public perception that the nuclear industry cannot exist without special Congressional favors and that the industry prefers to operate without public and state involvement. The NEPA and NRC licensing exemption for Federal facilities cannot be justified. The role of NEPA and the NRC have historically been major components to assure the affected public and state governments a vehicle for participation in the Federal government's decision-making. There would not appear to be any "national security" issues involved to warrant either exemption. Major structural changes to existing Federal pools will probably be necessary in order to accommodate the different sized commercial spent fuel rods, and as such will, in our opinion, constitute a "major federal action" which would require an EIS.

While giving the Secretary the discretion to make the "last resort" decision between on-site storage or a Federal facility, the May 26th draft also provides for the NRC to determine which reactors cannot reasonably provide storage capacity at-site. We agree that the NRC is the appropriate agency to make this determination in view of the Commission's expertise in providing just such statistics in the past.

The draft also requires that existing pools retain full core reserve. Full core reserve is that space in the pool left vacant to hold the entire reactor core if necessary. The NRC has steadfastly maintained that full core reserve is not a safety requirement. Rather it is to the utilities'economic advantage to retain full core reserve in order to provide for reactor maintenance. Full core reserve only serves to "prove" the utilities'argument that their pools are filling up and hence, require immediate relief.

Lastly, we would support the requirement that the generators of nuclear waste will pay for full storage costs. However, it would appear that the Federal government will still be donating the Federal facilities and that such an interim storage fund will require "up front" federal money which may or may not be ultimately reimbursed. Listening to industry and DOE assurances on the fund, I am reminded of the original Letter of Agreement that the AEC signed with TVA, Westinghouse and the Project Management Corporation. The original Agreement split the costs of the Clinch River Breeder Reactor on a 50-50 basis. Less than two years later, in 1973, the Agreement was modified with industry's contribution frozen at $257 Million and the Federal government agreeing to assume all future cost overruns. The nuclear industry's historic reliance on Federal subsidies makes one wary as to just how long the industry will stand by their commitment.

Mr. OTTINGER. Thank you.
Mr. Faden?

STATEMENT OF MICHAEL FADEN

Mr. FADEN. Thank you, Mr. Chairman.

For the record, my name is Michael Faden and I am legislative counsel for the Union of Concerned Scientists. The UCS, in addition to our own statement, subscribes to the views given to your committee on behalf of the Sierra Club and Friends of the Earth.

Our testimony today will concentrate on the onsite storage of spent fuel and the licensing provisions in the bills before you. We all prefer onsite storage. It presents fewer transportation hazards. But more importantly, it will eliminate any chance that a temporary away-from-reactor storage site will become, because of political difficulties in the repository program, a de facto long-term or permanent repository.

The legislation before you, taken together, has four ways to expedite the licensing of onsite storage provisions. Those are interim licenses, hybrid hearings, the generic approval of new technologies, and the limitations on justiciable issues.

We support two of those methods with relatively minor reservations and modifications. We oppose one of them as it is written in the discussion draft before you, and we oppose one of them no matter how it is written. That one is interim licensing.

As you mentioned earlier, we see a pattern developing here. Every time the nuclear industry perceives itself to be in trouble, the call goes out for interim licensing. We regard that as dangerous because it serves as a disincentive for the utilities to take the safest, as opposed to the cheapest and most familiar, route to solving their onsite storage problem.

It is also dangerous because it will lead to or could easily lead to the shunting aside of serious legitimate safety issues. We are not just talking, in the words of Mr. Smith earlier today, of letting people "express themselves." We are talking about qualified intervenors raising serious issues of the kind you heard Attorney General Kearney of Maine bring to your committee 2 days ago.

We believe that any drive for interim licensing brings back and maximizes the historic insularity from popular opinion, from the public demands for safety, of both the NRC and the nuclear industry, and we hope you will oppose it on that basis.

Is there a need for interim licensing? I do not need to remind you, because you also went through it, of the reactor interim licensing controversy last year, when the same sort of nearly hysterical cries came from the industry as to what would happen to any number of almost completed powerplants if the licensing process were not in some way shortcutted.

We have seen what happened since then. There were two plants in particular that the industry pointed to as being in trouble, two plants they pointed to as being already completed. Those were Diablo Canyon 1 in California and McGuire in North Carolina.

We all know what happened to Diablo when it finally got its license. It proved to be not only not ready to go on line, but far from it. And there is no indication at this point when, if ever, it will go on line.

The McGuire history is a little less well known, but quite similar. Maguire, as you may recall, had received a zero power license, a fuel loading license, a year ago last January, January 1981, before the licensing delay controversy reached its peak. All during that spring, McGuire was pointed to as a plant being kept off line by bureaucratic requirements.

Well, as it turned out, it did not go critical until well after it received its full power license. It is still not functioning at more than 50 percent because of technical problems in its steam generators.

So we would submit that these case histories, as well as the rest of the long list of plants that were supposedly delayed and are still not completed, should lead this committee and Congress as a whole to be extremely cautious in dealing with industry claims of imminent bureaucratic breakdown.

There are alternatives available, as you heard a great deal about earlier today, to the bypassing of the licensing process. Casks, as the NRC confirmed, can be licensed quite quickly. A study done last year for DOE—and I am referring to the report by E. R. Johnson Associates—listed casks as the most quickly licensable and the most quickly built form of storage. They predicted that casks could be licensed within 4 years. The NRC has given us an even shorter period.

There is also no reason, as you and Mr. Markey have indicated earlier, that a utility cannot build another pool onsite. It takes a bit longer. It is certainly more expensive. But the utilities have known for quite some time now when they would run out of spent fuel storage capability. This is not a sudden emergency that has come up quickly and requires an instantaneous response.

If this committee approves any form of interim licensing, it will continue the pattern that recurs throughout the history of nuclear power in this country of rewarding poor planning and poor management, of doing the most for the utilities that have done the least.

Lastly, on the question of need, there is a serious question, certainly in our minds, as to whether the older reactors, the ones that have been cited to you as the ones most in need of an interim storage fix, will produce the amount of power and therefore the amount of spent fuel they are predicted to produce.

Those reactors are also the most seriously impacted by these fast-developing safety questions surrounding steam generators, surrounding the embrittlement of the pressure vessel. And in that context I might note that the Robinson plant, that came before you today and has come before you in the past as an example of a plant that might go offline first, is very near the top of NRC's watchlist in both of those categories.

In fact, I believe, if my memory serves me correctly, it is the only plant on the NRC's watchlist for both steam generators and pressure vessel embrittlement.

The hybrid licensing process can be intended to serve either of two functions. It can be used as its proponents intend—to sharpen the issues in the hearing and make it more efficient; and it can be used, as we fear, to reduce the need for adjudicatory hearings.

We at UCS do not oppose hybrid licensing altogether, but we do urge that any provision be drafted carefully, much more carefully than the May 26 discussion draft or the Senate bill, to ensure that the licensing boards and those who come before them, whether they are applicants or intervenors, are not tied in procedural knots.

If the intention here is, as we fear, to avoid adjudicatory hearings rather than streamline them, the result would be that a decision with major safety impacts, the storage of spent fuel at a reactor site for up to one or two decades or more, would be given the same kind of hearing as the closing of a local elementary school. Witnesses would not be sworn; cross examination would not be allowed; the parties would not be able to rebut opposing arguments.

A proceeding of this sort, in our view, can only give the public the impression that the applicant is unable to present a persuasive case that will stand up to questioning or cross-examination.

The Interior Committee bill has a section that limits a number of justiciable issues that can come before an onsite storage licensing proceeding. We think that that provision as it is written represents an intelligent approach to expediting these hearings. While some intervenors across the country may disagree, our feeling is that the Interior provision is drafted carefully enough, but it could use some improvement. But it is, on the whole, drafted carefully enough to only exclude those issues which do not present major substantial safety questions.

And we hope the committee will take care to sharpen the drafting of it, but not to expand its scope to include substantial safety issues.

Finally, we have in the past offered to this committee and others in Congress a number of suggestions of ways to make the licensing process more efficient and expedite it without sacrificing the public's right to raise and have decided significant safety issues. Most of those are administrative; they do not require legislation. NRC could do them by themselves.

For example, NRC could easily require all of the staff safety review documents to be in place before the hearing process starts. Likewise, it could require all the applicants' documents to be available at the outset of the proceeding. It could also schedule a round of consolidated depositions as soon as all of the parties identify their witnesses.

These are fairly simple suggestions. They are not glamorous. They are not gimmicks. But they can be used now, and if put in place, they will make the process less frustrating to everyone without sacrificing the quality of the decisionmaking. Thank you.

[Mr. Faden's prepared statement follows:]

UNION OF
CONCERNED
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UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEE ON ENERGY CONSERVATION AND POWER

Testimony of Michael Faden

Legislative Counsel, Union of Concerned Scientists

On pending nuclear waste legislation

June 10, 1982

Thank you for the opportunity to present our views on the comprehensive nuclear waste legislation before your committee. I will concentrate on the onsite spent fuel storage provisions of the major bills, namely the Senate-passed bill (S 1662), the bill reported by the Interior Commitee (HR 3809, as reported) and the May 26 discussion draft circulated by this Subcommittee's staff.

The onsite storage of spent nuclear fuel is not without safety risks, particularly when a spent fuel pool becomes overcrowded or when a licensee proposes to rely on untested techniques such as pin compaction. However, on balance it should be the preferable means of storing spent fuel until a permanent repository is available. Dry storage casks, in particular, are a promising mode of onsite storage because they raise few serious safety issues, can be located at virtually every powerplant site, are currently competitive in cost with water-based techniques, and can be installed in modular fashion --that is, in only the quantity needed at the time of installation-- thus saving utility ratepayers substantial capital expenses.

The proper goal of the onsite storage provisions of this legislation should be to encourage utilities to rely on safe forms of onsite storage without shortcutting the protections against unsafe techniques in current law. Certain bills fail to make this crucial distinction. For example, by allowing any form of onsite storage to be installed before the normal license hearings are held, the interim licensing provisions of S 1662 and the May 26 discussion draft would act as a disincentive for utilities to adopt the safest, as opposed to the cheapest or most familiar, means of spent fuel storage.

Similarly, the purpose of any "reforms" in the current hearing process should be to make the process more efficient and to allow it to focus on, rather than avoid, genuine technical issues. Any interim licensing provision totally subverts this goal, and the hybrid licensing provisions in these bills are in some ways inconsistent with it.

These licensing "reforms" will doubtless be justified as timesavers. We believe that any savings that are optimistically predicted will turn out to be illusory. When states and concerned individuals believe that their rights are being violated, they will use every legal and political means at their disposal to resist the perceived encroachments. Provisions that are intended to expedite proceedings will be used to delay them; every issue and phrase will likely be contested in a legal trench warfare that benefits no one. An approach that is less mistrustful of the public (and the NRC) will, in our view, prove to be the most efficient as well as the fairest.

Interim Licensing

We can only view the interim license provisions (Section 312 of S 1662 and Section 134(e) of the discussion draft) as attempts to broaden the dubious precedent contained in the FY 1982-3 NRC authorization bill. These provisions would let the NRC issue a license amendment allowing expansion of onsite spent fuel storage before the legally required hearing is held. We most strongly oppose any form of interim licensing.

Interim licensing would reverse more than 20 years of AEC and NRC interpretation of the Atomic Energy Act, and would violate fundamental principles of due process. With the public safety at stake, a nuclear powerplant operator should not be presumptively entitled to take whatever action it wishes, solely on the NRC staff's word. (The version of interim licensing in S 1662 and the May 26 discussion draft does not even contain most of the minimal procedural safeguards that were included in the powerplant licensing version, such as public notice and comment and final NRC staff safety analyses. It also effectively allows the utility to wait until the last minute to file its application for expanded storage, thereby "justifying" the issuance of the license on an interim basis.)

When intervenors like the Maine Attorney General are raising serious safety issues with respect to the proposed pin compaction at Maine Yankee, the public interest demands a full hearing before the NRC approves major structural modifications that are, as a practical matter, irreversible. Once the utility takes the action allowed under the interim license --once it reracks the spent fuel or expands the pool-- the public will correcly perceive that any further adjudicatory proceedings would be a sham.

The public will tolerate the continued prescence of nuclear waste at reactor sites only if it perceives that the decision-making process will handle directly and honestly the scientific, technical, and environmental issues that can be fairly raised. Legislation that short-circuits the normal nuclear licensing procedures will erode the public's confidence in the integrity of the federal decision-making process and the institutions that administer it, in the end adding to the utilities' difficulties with local public opinion. If all protective mechanisms are swept aside, the public is likely to conclude that the local utility's proposals cannot withstand full and fair scrutiny. The industry will then continue to lose its credibility and the public will not accept any form of waste storage. This will happen no matter how many NRC and industry experts vouch for the safety of the utilities' proposals.

Absolutely no need has been demonstrated for any interim license provision. No plant has ever been denied a license amendment for spent fuel pool expansion or reracking. Nor has any plant been shut down, or come close to shutdown, because of lack of spent fuel storage capacity.

Interim licensing for operating reactors was "justified" by the early 1981 NRC license delay figures that soon proved to be grossly overstated and are now thoroughly discredited. The 1981 licensing "delay" fiasco should, at the very least, warn Congress to be extremely skeptical of utilities' claims of regulatory delays. As Senator Hart recently told the Senate,

> ...last spring the nuclear industry cried wolf with its estimates of licensing delays and demanded relief from the Congress. That wolf, if it ever existed, apparently does not exist now...The experience with (the reactor interim licensing) provision should serve as a lesson for future decisions by the Congress on reform of the NRC's regulatory processes. While we should willingly consider reasonable proposals for regulatory reform, we should also avoid knee-jerk responses to cries of "wolf" similar to the one we heard from the nuclear industry last spring.

With respect to onsite storage facilities, no such delay figures have ever been produced --and they cannot be, because neither the NRC nor any other party can demonstrate any projected delay in the future licensing of any onsite storage methods.

This is not a temporary, extraordinary situation where a sudden emergency may require an expedited proceeding. A utility knows, years in advance, when it will run out of spent fuel capacity. The more prudent utilities, such as TVA, have already planned for this eventuality. Some of the others would rather solve their problem the easy way -- through a shortcut around the licensing laws.

Any utility always has the option of building another spent fuel pool at the reactor site. Such pools use a proven and accepted technology, can be constructed within predictable timeframes, take up very little space, and should present no licensing problems because one has already been approved at each site. The only "problem" is that a utility wishing to build one faces what are euphemistically called "institutional constraints" --namely, the normal licensing process. Licensing a spent fuel pool is neither technically complex nor very time-consuming, particularly when the legal issues are limited in the ways proposed in Section 132(c) of HR 3809. While the utilities obviously prefer to avoid the licensing process entirely, the public should be entitled to the information and cross-examination that are, in practice, available only through the adjudicatory process.

Dry storage casks, as we mentioned earlier, present another short-term alternative. They are somewhat less expensive than pools, and we have every indication (based on experience overseas and the NRC staff's preliminary assessments) that they will be successfully licensed within the next few years. We support the provisions of Section 311(b) of S 1662, Section 132(a) of the Interior bill and Section 133 of the discussion draft that encourage the commercialization and generic approval of this and other alternate technologies. We are confident that the few site-specific questions remaining after NRC grants such generic approval will present no barrier to timely use of storage casks at impacted reactor sites.

Hybrid hearings

Hybrid hearings should be an aid to, rather than a substitute for, the adjudicatory process. A well-designed hybrid hearing procedure could conceivably frame the issues in dispute more efficiently than NRC's current procedures do, and we are not opposed in principle to such procedural innovations. On the other hand, a rigid or clumsy procedure could significantly lengthen the process and frustrate all parties. The licensing board's valuable time could be wasted in procedural bickering which does nothing to answer the legitimate technical questions raised in these cases.

The provisions in both S 1662 and the Committee's discussion draft need, at a minimum, substantial improvement before they can effectively serve as the basis for NRC regulatory practice. By precluding cross-examination and rebuttal, by limiting the facts and data initially considered to those contained in sworn testimony, and by failing to recognize as live issues differences in expert opinion as well as disputes of fact, these provisions will most likely hinder rather than assist the formulation of the issues in dispute. (Strangely, as this section is drafted, the oral argument that is ostensibly intended to frame the issues follows, rather than precedes, the Commission's determination of which matters are in controversy among the parties.)

If these provisions are intended to eliminate as many adjudicatory hearings as possible, rather than to reform the rules for those that are held, this Committee should reject them. If after weeks of procedural jousting the Licensing Board rules that no adjudicatory hearing is warranted, then a decision with major safety impacts --the storage of spent fuel at a reactor site for decades-- will receive no more scrutiny than a local school closing. Witnesses will not be sworn; no cross-examination will be allowed; parties will not be able to rebut opposing arguments. A proceeding of this sort can only give the public the impression that the applicant is unable to present a persuasive case that will stand up to questioning and cross-examination.

In our view, it would be especially unwise to apply any new, experimental licensing procedure to a new, experimental spent fuel storage technique such as pin compaction. Untested technologies that may involve novel safety risks deserve the closest scrutiny on NRC's part, and the use of abbreviated procedures in such cases strikes us as particularly inappropriate.

Limiting the Issues

Section 132(c) of the Interior bill and Section 134(d) of the discussion draft propose to limit the issues that may be raised in a proceeding for expansion of onsite spent fuel storage. This section as a whole represents an intelligent approach to expediting the licensing process. While we are usually wary of limitations on the issues that may be considered, because they have in the past been employed in attempts to severely restrict the licensing boards' review of serious safety concerns, these provisions do not suffer from that fault. Although they could be improved (particularly with respect to the failure in clause (5) to recognize changed circumstances and new NRC safety criteria) they do not, in our opinion, exclude any of the central safety issues that could be raised in this type of proceeding. At the same time, this section will reassure nervous utilities that necessary storage options will not be stalled by consideration of side issues. We hope that all of tthe Committee's license expediting proposals evidence as much thought and realism as this section does.

Better Ways to Expedite Licensing

UCS has, in the past, offered a number of suggestions to make the nuclear licensing process more efficient without sacrificing the public's right to raise legitimate safety issues. Many of these apply to the license amendment process for spent fuel storage expansion, and most of them could be undertaken administratively by the NRC without new legislation. These include requiring the NRC staff safety review documents to be completed before the adjudicatory process starts, making all of the applicant's relevant documents and data available at the outset of the proceeding, and scheduling a round of consolidated depositions as soon as all parties are required to identify their witnesses.

In addition, Congress could mandate (or NRC on its own could decide) that applications for spent fuel storage expansion will receive high priority for staff review time. Our experience in reactor licensing has been that the bulk of the "delays" in the licensing process are caused by the failure of the utility to submit the necessary information promptly and the slowness of the NRC staff in processing and reviewing that information.

All of these, along with many of the other suggestions submitted last year by the Licensing and Appeal Board Panels to the NRC commissioners, would improve the licensing process without subverting its basic goals. Congress should look to these genuine reforms before taking drastic steps that would eviscerate, or eliminate entirely, the licensing of spent fuel storage. What is at stake here is not simply the economics of any given utility. While that is a legitimate interest, it should beat the least balanced by an active concern for the safety of the public.

Mr. **Ottinger**. Thank you very much.

Mr. Ward.

Mr. **Ward**. I have just one question. Most of the attention has been focused on suggested changes to the licensing process. There has been more recent consideration given to changes in the judicial review process. Have you read the article in the Harvard Law Legislative Review from last January on the two-stage judicial review of nuclear issues?

Mr. **Faden**. I have not read that particular article. I am generally familiar with the subject.

Mr. **Ward**. Do you have any comments?

Mr. **Faden**. Our view, UCS' view, has been, not just recently but for the past 5 years or so, that the two-stage licensing process is not at all ideal and could be improved.

We would favor—and we have paid more attention to this with respect to powerplants than spent fuel storage—we would favor a licensing process that calls upon the applicant to produce a full design up front so all the technical safety and design issues could be decided before the permit is granted.

We see the second stage of the process as being necessary to deal with two issues: first, whether the applicant has, in fact, constructed the plant as it said it would—among other places, the Diablo Canyon and Zimmer issues; and second, whether changed circumstances, major new safety discoveries, changes in NRC criteria that have occurred in the intervening period are substantial enough to prevent the licensing of that plant.

Mr. **Ward**. There is this year clearly a refocusing of attention on the initial selection of sites as the key determination in the process. Someone suggested there ought to be a mandated EIS at that stage. The first question is: Is there sufficient information at that stage of the process for a full EIS?

Mr. **Yeager**. I think, to answer that, we really ought to go back to the kind of plan that was advanced by the Department of Energy in its waste confidence proceeding filing, which at that time, 2 years ago, represented the department's best analysis of why its program was worthy of confidence as a program that would eventually dispose of nuclear waste.

What they said was they would have a tiered system of environmental review, that at the point prior to site characterization there would be an EIS but it would not be expected to evaluate the site-specific, design-specific technical area, that you could only get information on by doing the site characterization.

It would be designed to evaluate the impacts of the design characterization process to the relative value available from the relevant surface characterization at that site as opposed to others.

And three, the likely impact on the community of siting a repository at that site without getting into the below-ground types of specific design questions that would be considered at a later stage in environmental review. I think the plan was valuable in the sense that it did not propose a duplication of environmental information.

It was clear that document would be relied upon later in the environmental process and would not have to be redone and that the information that would be developed at the time a site was selected and an application was made to the Nuclear Regulatory Commission would be of a different sort, and that issues that had been resolved in the prior EIS would no longer have to be reentered into at the time there was a site, a design-specific EIS for a particular repository at that site.

Mr. OTTINGER. Mr. Warner.

Mr. WARNER. Just a couple of questions for you all. Is it not true that your organizations would prefer the draft language in the May 26 draft to the provisions for the spent fuel storage and AFR's in the Senate-passed bill?

Ms. PARSONS. I think there are some major problems we have with the existing May 26 draft. At minimum, if in fact there needed to be Federal facilities, which we frankly do not believe need to be put in place, if those facilities should be licensed by the NRC and should have full NEPA application, my ideal position would be that those Federal facilities are not needed, that we are rewarding the utilities for mismanagement.

Mr. WARNER. But you would prefer the May 26 draft language to the Senate-passed language?

Mr. YEAGER. I would not be willing to say that.

Mr. WARNER. Would you prefer the Senate-passed language?

Mr. YEAGER. I do not think it is appropriate for us to make a choice at this point of the lesser of two evils, in that both languages have particular disadvantages from our point of view, and I do not think, as Renee put it, it does not seem to me that this Hobson's choice is at all necessary.

Mr. WARNER. Is it not true that you would prefer the utilities take care of their spent fuel problems on site; and would it then not be true that you would prefer, as a choice between offsite storage and onsite licensing reforms, that you would prefer onsite licensing reforms?

Mr. FADEN. The question assumes such a choice is necessary, and we do not believe it is. We think the record very clearly shows that utilities can handle the problem onsite.

Going back to your original question, I might prefer being struck by lightning to dying a lingering death from cancer. But I do not think either is within my list of things I want to do in the next week or so.

Ms. PARSONS. I do not think historically there has been a proven need for those kinds of exemptions. The NRC has not denied a utility an application to expand the reactor site. It simply has not been a problem.

Mr. WARNER. Do you support the exclusion of issues contained in the bill reported by Chairman Udall in the House Committee on the Interior?

Mr. FADEN. I think we would, with some fairly minor modifications.

Mr. OTTINGER. Which provisions?

Mr. WARNER. The exclusion of issues language reported by the House Committee on the Interior for onsite spent fuel storage.

Mr. YEAGER. Speaking for the Sierra Club, I also agree with Mike's comments.

Mr. OTTINGER. What are your reservations? I had some, but I do not remember what they were.

Mr. Faden. I think subclause 5, if I remember correctly, could stand some improvement in the sense of not as it is written now, taking into account changed circumstances or new NRC safety criteria. It talks about issues that had been decided at the time of the original plant licensing.

Mr. Warner. Thank you, Mr. Chairman.

Mr. Ottinger. Do you feel military wastes ought definitely—what you have said is that it is more important that the procedure be the same than that there be one repository for both civilian and military wastes.

Mr. Yeager. If you will pardon the question, I think the question of physically commingling the wastes is a red herring. The question is do States and does the public in general and local communities have the same not only legal rights with reference to the process with which the waste repository may be sited but also the same assurance that DOE is going to follow a set of ground rules which have been mandated by Congress and which force it to do a technically conservative job in siting that repository.

If that is assured for both forms of waste, I think speaking for myself and, I believe, for the Sierra Club, that we would feel that the major problem had been solved, that it was not a question of having to have the two forms of waste in the same repository.

Mr. Ottinger. I think there are other considerations. There is a tremendous amount of people's time involved and concern on the part of the States to duplicate this process. I do not know what the size of a potential repository is. But it would look as if one site would take care of the anticipated spent fuel and military waste for many, many years.

Mr. Yeager. I cannot challenge that on the basis of my own knowledge. I have talked to people whom I regard as experts in the environmental field who feel there are likely to be multiple repositories at the end of the line on this process, whether or not you segregate military and commercial wastes.

Mr. Ottinger. The cask solution, is it possible to avoid the difficult problems of a permanent repository altogether by using casks onsite for spent fuel?

Ms. Parsons. Well, I do not know why not. The casks are operational. This is the Brooks & Perkins flier. They are operational and ready to be put into use tomorrow if it could be accomplished. They hold a minimum of 24 assemblies, up to 104, depending if it is PWR or BWR spent fuel.

I do not know of any reason, any inhibition, for why those casks could not be used at reactor sites. There is enough space there for multiple casks to be stored at reactor sites until a permanent repository is ready.

Mr. Ottinger. What is the anticipated life of these casks?

Ms. Parsons. I do not know.

Do you know?

Mr. Faden. I do not think that information has been fully developed and probably will not be until they are placed in use. But it is relevant there to note that casks more than any other form of storage are easily replaced on a modular basis; in other words, when one wears out, it does not disrupt the utility's entire storage system to replace it.

Mr. **Ottinger**. Considering the number of problems that are attendant with permanent geological storage and with the candidate geological storage sites, might we be best advised to go forward for some period with the use of casks? I take it at least you feel if we had the casks available, we would not have to rush to judgment on a permanent repository.

Mr. **Yeager**. If I could clarify that. I do not think we would feel that dry storage casks any more than spent fuel water pools represent an alternative to a permanent solution to the commercial waste problem. By their nature, they are temporary no matter what their specified lifetime might be, just as the double-steel-walled tanks for holding high-level waste from the defense reprocessing are temporary.

In fact, every so-called solution to the waste problem is temporary other than the proposition of the permanent repositories at this stage. And we have strongly supported a siting program that moves with expedition to site permanent repositories.

We do not, on the other hand, want to place expedition ahead of safety or ahead of the resolution of technical environmental questions, not only because of the consequences for the environment, but because of the consequences of the ability to site those repositories. If you make another mistake, as you refer to, on the order of the Lyons, Kans., siting mistake, there may never be a geological repository site in the United States because of the resulting public uproar. That, I think, would be a very, very damaging turn of events.

Mr. **Ottinger**. I think that is the critical issue in this question: That siting be done with sufficient care so that we do not end up having radioactive drinking water in any part of the country.

Mr. **Yeager**. Or a proliferation of temporary solutions which never arrive at permanent. That is something that we regard as a nightmare.

Mr. **Ottinger**. Is that a nightmare? I do not know. That is really what I am exploring with you. Is there any rush? If the cask solution is good enough, ought we defer the permanent solution?

Mr. **Yeager**. If you will pardon the analogy, I think that is the same question that has been raised with regard to monitored retrievable storage, which is the institutional alloy for some sort of pushing off of the process until everything cools down, until people cool down, or until the waste cools down.

Our opinion is it also pushes off a very important deadline, if you will, and that is the deadline at which it becomes clear whether or not there is ever going to be a permanent solution to the problem posed by nuclear waste. If, in fact, it were decided in some kind of conclusive way that there could be no permanent solution, I think every one of us and the Congress would have to reevaluate their attitudes with regard to the production of any further nuclear waste.

Mr. **Ottinger**. Ms. Parsons.

Ms. **Parsons**. I was just going to add I would not want to see the permanent repository program put on the back burner by the use of the dry casks. And again, that is the same argument that has been used in favor of the MRS.

Mr. **Ottinger**. Do you favor keeping the high-level wastes or putting them in a permanent repository, retrievable; and if so, for how long?

Ms. **Parsons**. I am not technical enough to make a judgment for how long. I have heard 50 years. But I would say we would like to see that spent fuel or that waste retrievable for safety purposes.

Mr. **Ottinger**. Is that the general consensus?

Mr. **Yeager**. I think we support the NRC's technical rule in that regard which requires 50-year retrievability.

Ms. **Parsons**. That is our position also.

Mr. **Ottinger**. Any other questions?

[No response.]

Mr. **Ottinger**. We thank you very much.

Mr. **Yeager**. Thank you, Mr. Chairman.

Ms. **Parsons**. Thank you, Mr. Chairman.

Mr. **Faden**. Thank you.

Mr. **Ottinger**. And we will hear last, but not least by any means, from Tom Cotton of the OTA, and S. David Freeman from the Tennessee Valley Authority.

Gentlemen, we welcome you. And I note you have both been here during these long deliberations. What advice do you have to give us? Particularly, Mr. Freeman, what advice do you have from your experience with dry cask storage?

STATEMENTS OF S. DAVID FREEMAN, DIRECTOR, TENNESSEE VALLEY AUTHORITY; AND THOMAS A. COTTON, SENIOR STAFF MEMBER, OFFICE OF TECHNOLOGY ASSESSMENT

Mr. **Freeman**. Mr. Chairman, I am delighted to be here. I have been here sufficiently long that I will submit my prepared statement for the record and use my time to respond to what is on your mind that we might be helpful on.

As far as the dry cask storage experimentation is concerned, we are quite proud of the fact that we exercise some leadership in that area. And in cooperation with the Department of Energy, very good cooperation, we have a program underway that will lead to a dry cask facility that under our timetable will be operable in 1983.

The manufacturer, as NRC testified, has submitted a technical report. We will then be applying for a demonstration license, and that facility should be in place in 1983. That is not the only technical option we are pursuing for enlarging our onsite storage capacity. We have also underway simultaneously an experiment that will enable us to store the spent fuel at a much higher density. This is over and above the high-density racks we have already put in place which TVA started putting in place in the mid-1970's when we faced up to the reality that we had a responsibility for our own waste. And quite frankly, we were somewhat skeptical of the speed with which the Federal Government would come up with a solution and, therefore, engaged in self-help.

It is true, as private industry testified, that some of our plants came on line later. But overall, we have spent our ratepayers' money in investments in facilities and new technology that puts us in a position to where we have really until 1984 before we have to make any additional decisions about onsite facilities.

And I might say also that we are one of the rare organizations in the nuclear field operating that has no fundamental criticism of the NRC. We feel they are doing their job. They are reflecting the problems with the technology. And we do not have any concern about their responding in a manner that servcs the public interest.

We hope we are helpful to them by demonstrating safety-first approaches to these problems that will provide a basis for their licensing work on a sound ground.

[The prepared statement of Mr. Freeman follows:]

STATEMENT OF S. DAVID FREEMAN, DIRECTOR
TENNESSEE VALLEY AUTHORITY
BEFORE THE
SUBCOMMITTEE ON ENERGY CONSERVATION AND POWER
OF THE
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES
WASHINGTON, D.C.
JUNE 10, 1982

MR. CHAIRMAN, THE TENNESSEE VALLEY AUTHORITY WELCOMES THE OPPORTUNITY TO ADDRESS THIS SUBCOMMITTEE ON THE SUBJECT OF NUCLEAR SPENT FUEL MANAGEMENT. THE PROBLEM IS A VERY REAL ONE FOR TVA. DESPITE THE DEFERRALS OF EIGHT (8) NUCLEAR UNITS, TVA STILL HAS FIVE (5) OPERATING NUCLEAR UNITS AND FOUR (4) UNITS UNDER CONSTRUCTION.

TVA IS FIRMLY COMMITTED TO SAFE AND ECONOMIC MANAGEMENT OF ITS SPENT FUEL AND HAS TAKEN ACTION ON ITS OWN INITIATIVE TOWARD THAT END AS I SHALL RELATE. BUT FEDERAL ACTION IS ALSO REQUIRED.

TVA IS ENCOURAGED THAT THE CONGRESS IS PROCEEDING TO TAKE SUCH ACTION IN THE FORM OF LEGISLATION WHICH WILL PROVIDE A VEHICLE THROUGH WHICH THE FEDERAL GOVERNMENT WILL CARRY OUT ITS RESPONSIBILITIES REGARDING A FINAL DISPOSITION OF HIGH-LEVEL WASTE (WHICH COULD POSSIBLY END UP BEING SPENT FUEL).

WE PARTICULARLY SUPPORT THE CONCEPT THAT THE BENEFICIARIES OF NUCLEAR POWER SHOULD PAY THE COST OF STORING AND DISPOSING OF SPENT FUEL. IN THIS CONNECTION, HOWEVER, THE FINAL LEGISLATION SHOULD CONTAIN ASSURANCE THAT THE MONEY COLLECTED THROUGH A FEE WOULD BE RETURNED TO NUCLEAR REACTOR OWNERS AND THEIR CUSTOMERS WITH INTEREST IF THE NUCLEAR WASTE REPOSITORIES ARE NOT PROVIDED BY THE FEDERAL GOVERNMENT ON A REASONABLE SCHEDULE. WE BELIEVE A USER FEE IS FAIR ONLY IF IT CAN BE ASSURED THAT THE UTILITIES WILL GET EITHER THE REPOSITORY SERVICES THE BILL PROMISES OR THE RETURN OF THEIR FEES.

SIMPLE RETURN OF FEES IS NOT THE ONLY PROBLEM, HOWEVER. THE ACTIONS OR INACTION OF THE FEDERAL GOVERNMENT REGARDING NUCLEAR WASTE ISSUES OVER THE PAST YEARS HAVE ERODED THE PUBLIC'S CONFIDENCE THAT IT HAS THE RESOLVE TO EFFECTIVELY CARRY OUT THE LONG-RANGE ACTIONS PROVIDED FOR IN THE BILL. MORE INSTITUTIONAL STABILITY MUST BE ASSURED TO REGAIN THIS CONFIDENCE. SOME WAY MUST BE SOUGHT TO AVOID SUDDEN SHIFTS IN NUCLEAR POLICY AND INTRAORGANIZATIONAL COMPETITION FOR FUNDS AND MANPOWER. ALSO, IN OUR PERSONAL VIEW, PERHAPS THE CREATION OF AN INDEPENDENT GOVERNMENT CORPORATION, AS SUGGESTED BY THE OFFICE OF TECHNOLOGY ASSESSMENT, WOULD BE A VIABLE APPROACH TO RECTIFYING THIS CRISIS OF CONFIDENCE.

TVA BELIEVES THAT STORAGE OF SPENT REACTOR FUEL GENERATED BY AMERICAN UTILITIES SHOULD BE THE RESPONSIBILITY OF THESE UTILITIES. THESE OPERATORS SHOULD HELP DEVELOP IMPROVED STORAGE METHODS AND APPLY FOR LICENSES FOR EXPANDED STORAGE. WE ALSO BELIEVE THAT THE FEDERAL GOVERNMENT SHOULD SHIFT FUNDING FROM THE AWAY-FROM-REACTOR INTERIM STORAGE PROGRAM TO SUPPORT COOPERATIVE RESEARCH AND DEVELOPMENT OF NEW ONSITE STORAGE TECHNOLOGY THAT CAN BE USED BY UTILITIES.

BASED ON A 1979 TVA STUDY, TVA ADOPTED A POLICY OF PROVIDING ONSITE STORAGE CAPABILITY RATHER THAN GOING TO A CENTRALIZED REPOSITORY. ALTHOUGH A FULLY UTILIZED CENTRALIZED FACILITY MIGHT BE SLIGHTLY LESS EXPENSIVE THAN INDIVIDUAL ONSITE STORAGE UNITS, THE INCREASED FLEXIBILITY, MINIMUM TRANSPORTATION REQUIREMENTS, AND GREATER POTENTIAL TO TAKE ADVANTAGE OF TECHNOLOGICAL INNOVATION WERE CONTROLLING FACTORS IN THE DECISION TO GO TO ONSITE FACILITIES. I MIGHT ADD THAT WE ALSO PAID ATTENTION TO THE PUBLIC WHICH PARTICIPATED IN OUR HEARINGS AND FAVORED ONSITE STORAGE.

TVA IS ENCOURAGING EMERGING NEW TECHNOLOGIES; TWO OF THE MOST PROMISING INVOLVE BETTER UTILIZATION OF EXISTING POOLS AND THE ADVANTAGE OF MODULAR PASSIVE DRY STORAGE. WHILE BOTH THESE CONCEPTS ARE EQUALLY APPLICABLE TO CENTRALIZED STORAGE, ADDITIONAL TRANSPORTATION INVOLVES COST AND SAFETY

FACTORS WHICH COULD EASILY FORCE THE DISAPPEARANCE OF ANY ECONOMY OF SCALE RESULTING FROM A CENTRALIZED FACILITY.

MOREOVER, TVA HAS IDENTIFIED NO REASON WHY AN ONSITE FACILITY CANNOT BE DECOMMISSIONED SEPARATELY FROM THE REACTOR PLANT ITSELF. IN FACT, TVA HAS ESTABLISHED SEPARATE DECOMMISSIONING AS A FUNCTIONAL CRITERIA IN ITS APPROACH TO ADDITIONAL STORAGE FACILITIES.

TVA HAS TAKEN A NUMBER OF STEPS THAT WILL ENABLE IT TO STORE ITS SPENT FUEL FOR AS LONG A PERIOD OF TIME AS MAY BE NECESSARY. TVA'S FIRST STEP WAS TO INCREASE ITS EXISTING SPENT FUEL STORAGE CAPACITY BY SWITCHING THE ORIGINAL STORAGE RACKS TO THOSE CAPABLE OF MUCH HIGHER DENSITY STORAGE. THIS STEP WAS TAKEN IN THE MID-1970'S WHEN IT BECAME APPARENT THAT REPROCESSING AND RECYCLING OF SPENT NUCLEAR FUEL WOULD NOT BE AVAILABLE AS PREVIOUSLY PLANNED. BY MAXIMUM USE OF HIGH-DENSITY STORAGE RACKS, TVA COULD INCREASE EXISTING STORAGE CAPACITY RESULTING IN ADEQUATE STORAGE AT ALL PLANTS FOR AT LEAST TEN YEARS, THUS ALLOWING TIME TO EVALUATE EMERGING TECHNOLOGIES.

THE TVA BOARD'S DECISION TO DEFER SOME OF OUR NUCLEAR PLANTS IS PROVIDING TVA ADDITIONAL TIME TO EVALUATE NEW TECHNOLOGIES BEFORE MAKING MAJOR INVESTMENTS IN ONSITE STORAGE FACILITIES FOR SPENT FUEL. AND WE ARE DOING JUST THAT.

We believe that it is desirable to consider the full scope of spent fuel management, from discharge from the reactor to final disposition, in choosing the preferred approach for providing additional TVA spent fuel storage capacity. For now our primary objective is to evaluate the options.

We are carrying out evaluation and demonstration programs to be in a position to make a decision by 1984 on the preferred approach for additional onsite storage to meet TVA's needs.

Of the new technologies TVA is pursuing, rod consolidation probably has the greatest immediate potential payback. Using this process, which involves the disassembly of spent fuel elements and the storage of the fuel rods in a closer spaced array, storage of up to twice the spent fuel in the same space may be achieved. This new increment of storage is expected to be even less costly than that already provided with high-density racks. TVA has entered into a cooperative, 2-phase program with the U.S. Department of Energy (DOE) to demonstrate this new technology. The first phase, a demonstration with nonirradiated fuel by DOE has been completed. The second phase will involve the disassembly and storage of 12 actual spent fuel assemblies at TVA's Browns Ferry Nuclear Plant early in 1983.

TVA and DOE have developed a cooperative program for a 2-year demonstration of onsite dry storage in metal casks. This demonstration is tentatively planned for late 1983 at Browns Ferry and will involve two designs of storage casks. One cask, to be supplied to TVA by Gesellschaft fur Nuclear Service, is constructed of nodular cast iron and has been certified in the Federal Republic of Germany for both storage and transport. The second cask is to be supplied to TVA by DOE and is of a new design for onsite storage only.

In short, Mr. Chairman, TVA's leadership in spent fuel management is based on the following objectives:

o Avoid unnecessary transportation of spent fuels;

o Permit spent fuel storage at a small fraction of the cost of electricity production; and

o Allow TVA time to pursue and demonstrate new technologies which defer and minimize capital expenditures.

# # #

Mr. **Ottinger**. You do not have any plants that are going to have to close down?

Mr. **Freeman**. We have deferred the construction of eight units since I have been there because of the combination of the success of our conservation program and the failure of the economy.

And that, of course, has given us some additional breathing room, as I say, due to a combination of the time of our plants and the investments we have made in onsite facilities. When I came on the TVA board shortly thereafter, we engaged in a public participation process to take a hard look at onsite storage versus away-from-reactor storage. We had public hearings, we had experts, and we made a cost-benefit study of it, including the views of the public.

TVA decided in September of 1979 on a policy of onsite storage, and we have been at work implementing that policy ever since.

Our basic concern is the perceived danger of transportation. I will admit, if you look at it from a purely technical point of view, if everything works right we can transport spent fuel with little risk. But the perception in the Tennessee Valley was, due to the fact that some trucks carrying low-level waste had overturned, was there was a great deal of concern.

We were concerned about State legislatures in the future enacting laws that would constrain those shipments. And we decided on on-site storage for the basic reason that it gave us more flexibility. And it turns out, I think, to have been a wise decision.

Mr. **Ottinger**. Do you have any advice for us on the other complex questions involved with selection of a permanent repository site or the licensing issues?

Mr. **Freeman**. It has been very interesting to me to hear the testimony all day. At TVA we have been hard at work trying to do what we needed to do to get our own situation in order. And I am not sure that our words would be quite as meaningful to you as perhaps what we have done.

If I may be permitted a somewhat parochial point, though, I would like to make this one. I am concerned about the tax that is being imposed in some of these bills on everyone, including the TVA, that may result in a tax beginning in 1983 for services that we will not need and may not be available until the next century.

And I would just make an equity plea to the committee, if I may, that that language be redrafted so that the administrative agency at least would levy taxes commensurate with what is going to be spent and what services may be available.

The Tennessee Valley Authority has invested a lot of money in onsite storage, and we will not be shipping spent fuel.

Mr. **Ottinger**. I think the provisions we are contemplating call for the people who need AFR's to pay for them.

Mr. **Freeman**. Well, some of the bills tax everyone across the board. And I am making a plea for equity.

Mr. **Ottinger**. That is what your plea for equity is with respect to interim storage?

Mr. **Freeman**. Yes. We are perfectly prepared and believe, as a matter of public policy, that the utility should pay for the service rendered. But I fear a situation where inevitably no services will be available for a long, long time, especially for a utility with no intention of shipping spent fuel in this century, which is going to be investing in an onsite facilities and with no reprocessing, no economic reprocessing on the horizon, I think, until the next century.

We do not want to throw away the energy value in the spent fuel. We do not want to be shipping it over the highways. And I have no assurance there will be any place to ship it to until well into the next century.

Mr. **Ottinger**. I do believe, and counsel can correct me, that our contemplated resolution is to have those who need any kind of interim storage to pay for it and that they ought to have that as a part of the general burden, the general burden on nuclear utilities so that these nuclear plants can defer the expenses of permanent storage.

Mr. **Freeman**. I am speaking for myself on this comment. I have not discussed it with my colleagues. But as I sat here this morning listening to the testimony, it was not at all clear to me what materials are contemplated to be shipped to these permanent repositories.

In this century with the slowdown in nuclear expansion and the difficulties of reprocessing from almost any point of view, economic and safety, I do not see in this country any reprocessing in this century. So that the nuclear utilities will have only spent fuel.

That spent fuel does contain valuable energy that sometime in the next century may or may not be a large source of energy for this country. And perhaps the contemplation is they would be shipped to a permanent repository that is retrievable.

And I am not suggesting that TVA not pay its fare for that facility. But it is altogether possible that that facility will not be built for a long, long time. And with the cask and other onsite storage, it may be in the public interest to let that spent fuel stay there until it is reprocessed. And I just hope that that is understood as the bill is drafted and put to bed.

Mr. **Ottinger**. Mr. Cotton, what do you have for us?

STATEMENT OF THOMAS A. COTTON

Mr. **Cotton**. For the record, my name is Thomas Cotton. I am the director of the Office of Technology Assessment's study of commercial high level radioactive waste management. I appreciate the opportunity to be here today to present the results of our study and answer any questions.

The main conclusions of our study are included in my testimony, and I would like to submit that for the record. Since it is late, what I would like to do is to make a couple of points from the testimony that I think are worth emphasizing today and then be open for questions.

The first one relates to the importance of a firm and conservative schedule for the development of repositories. We concluded in our study that a commitment in law to a firm but conservative schedule for repository operations appears to be the keystone of a high-level waste policy. Both of the characteristics—that is, firmness and conservatism—appear necessary if the policy is to obtain the kind of broad support needed to avoid the policy instability we have had in the program in the past.

If either is missing—if the schedule is optimistic and not conservative or is flexible and open ended and not firm—the history of the waste program suggests someone will be left seriously dissatisfied with the policy and will have a strong incentive to try to change the schedule again in the future. We have had enough shifts back and forth in the schedule that it appears desirable to avoid further shifts.

Since the concept of a firm schedule seems to be generally accepted in the legislation and most of the bills under consideration, I would like to discuss briefly the importance of making it a conservative schedule.

The basic reason for conservatism in a mandated repository schedule is the fact that there are unavoidable technical and institutional uncertainties about how long it will take to develop the first licensed and operating repository, and any failure to meet a mandated schedule that results from these uncertainties could damage the credibility of the entire Federal effort.

All of the bills now under consideration require acceleration of the current DOE reference schedule for the first repository, which anticipates operation sometime between 1998 and 2001. Yet even that schedule can be seen as optimistic, since it appears to assume that everything will go right the first time—that all the technical and institutional processes will go smoothly, with no unanticipated problems, and that the group of sites now under consideration is large enough to assure that one can be developed into a licensed and operating repository.

A legislative mandate that DOE accelerate that already optimistic schedule, or even meet, it could cause several potentially serious problems. First, it could lead to premature decisions—such as selection of the first candidate site or an NRC action on the license application—which would increase the chances that the final NRC action on the first site would be unfavorable.

Second, slippage in the schedule could occur if the deadline simply cannot be met. That could call into question the credibility of the entire schedule and of the Federal Government's ability to manage radioactive wastes, particularly if those slippages occurred in the early stages of the process when it is most important to begin building confidence in the Federal waste management program.

Third, contractual commitments with the utilities that are based upon a schedule which can only be met if everything goes right the first time will simply not be credible, and will not provide the utilities with the firm planning basis for interim storage they need.

Finally, an overly optimistically mandated schedule is likely to lead to opposition, rather than support, from those who believe that more time should be allowed to resolve the remaining technical uncertainties and to work through any new institutional procedures that are established.

These considerations suggest an alternative approach to schedules. Legislation could contain two sets of dates for the steps in developing the first repository. The first would be optimistic but nonbinding goals, perhaps based upon the current DOE reference schedule, which would serve to focus DOE efforts in the near term and which could be met if one of the sites under consideration proves acceptable and no other problems are encountered.

The second set of dates would be a conservative mandatory schedule which DOE would be required to meet and which would serve as the basis for contractual commitments to insure that these commitments can be kept. Even if the sites now under consideration do not produce a licensed repository—and that is a possibility which cannot be ignored—this schedule would allow time for an additional set of potential sites to be identified and a second candidate site chosen from those sites and carried through the licensing process independent of the first site submitted for licensing.

I should add that if Congress wishes to assure that a set of backup sites to those now under consideration be brought along in this manner, legislative requirements to that effect may be needed to assure they are not deferred or eliminated in a later budget cycle as being unnecessary duplication.

[Testimony resumes on p. 600.]

[The prepared statement of Dr. Cotton follows:]

TESTIMONY OF THOMAS A. COTTON

OFFICE OF TECHNOLOGY ASSESSMENT

Mr. Chairman:

My name is Thomas Cotton, and I am the director of the Office of Technology Assessment's study of commercial high-level radioactive waste management. I appreciate the opportunity to appear before this committee today to discuss the results of our assessment and to answer any questions you may have.

The main conclusions of our study are outlined in detail in the summary of the report, which I would like to submit for the record. For the sake of brevity, I would like to quickly outline the central conclusions of the study, and then to highlight several specific points which are of particular relevance to your deliberations.

The basic finding of our study is that, although the remaining technical uncertainties and challenges associated with high-level radioactive waste disposal are by no means trivial, they pale in comparison to the institutional challenges of developing and implementing over a period of decades a comprehensive Federal waste management policy. The history of the high-level waste program is a history of false starts, shifts of policy, and fluctuating suppport. The result is a widespread erosion of confidence that the Federal Government can or will manage high-level radioactive waste safely and efficiently.

The credibility of the Federal high-level waste management effort is questioned on three main grounds: 1) whether the Federal Government will stick to any waste policy through changes of administration; 2) whether it has the institutional capacity to carry out a technically complex and politically sensitive program over a period of decades; and 3) whether it can be trusted to respond adequately to the concerns of states and others who will be affected by the waste management program.

OTA's analysis indicates that, if history is not to repeat itself, it will be necessary for Congress to adopt in law a comprehensive radioactive waste management policy -- one that addresses the near term problems of spent fuel storage as part of an explicit and credible program for dealing with the longer term problem of developing a disposal system. Such a policy would need to place high priority on avoiding the problems that have beset the program in the past, through use of a conservative technical and institutional approach. In particular, to end the policy instability that has been a hallmark of the high-level waste program, a policy would need to address the concerns of and, if possible, win the support (or at least the acquiesence) of all the major interested parties.

Perhaps the most important, and certainly the most unexpected, discovery of our study is that there is at least one combination of the policy options we evaluated that appears to be capable of achieving such broad support, in spite of the high degree of polarization that has occurred in the debate about nuclear waste. This policy contains three major elements, each designed to address one of the key questions concerning Federal credibility:

Element I: Commitment in law to the main goals of a comprehensive national policy for interim storage and final disposal of commercial high-level radioactive waste.

Goal 1: To develop several final disposal facilties -- mined geologic repositories -- on a firm and conservative schedule.

Goal 2: To contract with utilities to begin accepting waste at a repository on a conservative date when a repository is likely to be available.

Goal 3. To assist the interim storage efforts of utilities by supporting licensed demonstrations of dry storage technologies and providing a limited amount of supplemental storage capacity as an emergency backup in case of unavoidable delays in utilities' efforts to develop their own storage capacity.

Element II: Credible institutional mechanisms for meeting the policy goals.

The history of the Federal waste management effort strongly suggests that substantial changes in the Federal Government's management approach must be made in order to give credibility to the central component of Element I -- a commitment to the development of a complex technological system faced with technical and institutional uncertainties, on a firm schedule extending over a period of decades. The major institutional mechanisms in the combination of policy options we have identified as capable of achieving broad support are the following:

A. Congressional approval of a binding Management Action Program developed by the administration that spells out the technical and institutional actions and the financial and managerial resources required to meet the policy goals.

B. Assured funding through a waste management fund financed by a mandatory user fee based on the management action program and paid by utilities at the time the waste is generated.

C. Assurance of adequate managerial resources through creation of an independent, single-purpose waste management organization whose sole responsibility is to carry out the waste management program.

Element III: Credible measures for addressing the specific concerns of the states and the various publics.

Because of the legacy of distrust of the Federal waste management program, explicit measures and guarantees appear necessary to assure the integrity of decisions concerning the siting, construction, and operation of waste disposal faciltiies, and to avoid actions that might create even the appearance that integrity could be compromised. History suggests that concerns about the safety and equity of Federal waste management activities on the part of affected states, localities, and the general public could become a source of increasingly effective opposition to implementation of a waste management program unless specific measures are adopted to deal with these concerns. Three areas are of particular concern.

A. Explicit plans and assured funds for involvement of the lay and technical publics.

B. Development of a regulatory process that makes ample allowance for the first-of-a-kind nature of the problem of demonstrating that a disposal system will provide the desired degree of isolation for millenia.

C. Provision in law of measures dealing with State and local concerns, such as a formal role in repository siting decisions and impact compensation.

As you can see, many of these provisions are contained in various bills under consideration by Congress, which is encouraging evidence of a growing consensus on waste management. I would now like to briefly focus on three key points that we feel warrant particularly careful consideration at this time: the importance of a firm but conservative schedule, the need for a management action program, and the relationship of the defense and commercial high-level waste disposal programs.

Firm and conservative schedule

A commitment in law to a firm, conservative schedule for repository operation is the keystone of the entire integrated policy. Both characteristics -- firmness and conservatism -- appear necessary if the policy is to obtain broad support. If either is missing -- if the schedule is optimistic rather than conservative, or flexible and open-ended rather than firm -- the history of the waste management program, and testimony on the bills under consideration by this Congress, strongly suggest that some affected group or another will be left seriously dissatisfied, and will have a strong incentive to try to change the schedule in the future. This could raise the risk of yet another repetition of the speedups and slowdowns that have plagued the repository program in the past, and call into question the credibility of a Federal commitment to any schedule.

Since the concept of a firm schedule seems to be generally accepted, let me discuss the importance of making it a conservative one. The basic reason for conservatism in a mandated repository schedule is the fact that there are unavoidable uncertainties about how long it will take to develop the first licensed, operating repository, and any failure to meet a mandated schedule will damage the credibility of the entire Federal effort. First, it is not certain how long it will take to get enough scientific and engineering data about a candidate site to be able to show that it is likely to meet EPA and NRC criteria and standards. Second, there is the possibility that any particular site under consideration could be rejected at some stage of the site evaluation process, including the repository construction and operation phases. If there are no backups available when this occurs, there could be a delay of years while additional sites are brought through the licensing process; even with backups, some delay may be unavoidable.

All of the waste bills now under consideration would require acceleration of the current DOE reference schedule for the first repository, which anticipates operation between 1998 and 2001. Yet even the DOE schedule can be seen as optimistic, since it appears to assume that everything will go right the first time — that all of the technical and institutional processes go smoothly, without unanticipated problems (Sen. Energy Committee Publication No. 97-62, p. 564); and that the group of sites now under consideration is large enough to assure that one can be developed into a licensed and operating repository (Ibid., p. 573). A legislated mandate that DOE accelerate this already optimistic schedule — or even simply meet it — could cause several potentially serious problems.

First, it may lead to premature decisions (e.g., selection of the first candidate site, and NRC action on the license application) which could increase the chances that the final NRC action on the first site will be unfavorable. Considering the great political importance that is being attached to the first repository, the negative effects on public confidence of rejection of the first site could be severe. A cautionary example may be found in the case of the site at Lyons, Kansas that was selected in 1972 by the Atomic Energy Commission for development of the first geologic repository. This site, which was abandoned with serious political repercussions two years later because of technical problems that were discovered, was chosen in part because the investigations that would have been needed to prove out the acceptability of another site were expected to cause a delay of about two years. Twenty-twenty hindsight suggests that taking those additional two years to find other candidate sites as backups might not have been a waste of time, and might have resulted in speeding up the process of siting a repository in the long run.

Second, slippage in the schedule could occur if deadlines simply cannot be met, which could call into question the credibility of the entire schedule, and of the Federal Government's ability to manage radioactive waste — particularly if the slippages occur in the early stages of the process when it is most important to begin building confidence in the Federal waste management program. Third, contractual commitments with utilities that are based on a schedule which can only be met if everything goes right the first time will not be credible, and would not provide the utilities with the firm planning basis for interim storage that they need. In this regard, our analysis suggests that the certainty of the schedule for accepting waste from utilities is more important to the utilities than the speed. Finally, an overly optimistic mandated schedule is likely to lead to opposition, rather than support, from those who fear that a firm schedule that does not allow ample time to resolve technical uncertainties could increase the risk that premature commitments to technologies and sites would be made and defended even in the face of problems that might develop later.

These considerations lead us to conclude that the milestones in the current DOE reference schedule could best be used as non-binding goals for development of the first repository, which DOE would be expected to meet unless problems arise. However, a mandatory schedule, which DOE would be required to meet and which would serve as the basis for contractual commitments, may need to be more conservative, in the sense that it would allow for the possibility that the sites now under investigation might not produce a licensed repository. Such a schedule could be based on DOE's best estimate of when an additional set of potential sites -- other than those now being investigated -- could be identified and a second candidate site submitted to NRC and carried through the licensing process independent of the first site. According to DOE's current plans, two additional sites suitable for characterization (including at least one in granite) could be identified by 1987, one selected for licensing by about 1992, and operations begun (assuming successful licensing) by 2005 or 2006. DOE also indicates that some acceleration would be possible if near term site-investigation budgets are increased, although they have not indicated precisely how much.

In this approach, legislation could contain two sets of dates for the steps in developing the first repository: optimistic but non-binding goals, which would serve to focus DOE efforts in the near term and which could be met if one of the sites now under consideration proves acceptable; and more conservative requirements, which could be met even if problems are encountered with the first sites, because backups would be available from an entirely new and independent set of sites.

This approach would minimize the risk that highly visible legislated commitments -- and contractual obligations based on them -- could not be met. At the same time, inclusion of explicit goals for the steps for developing the first repository -- that can be used by Congress to hold DOE accountable for slippages that are not excused by technical complications -- could provide strong incentives for near-term progress that might otherwise be lacking with conservative commitment dates. Adoption of DOE's own reference schedule (rather than an accelerated one) as the basis for such goals would have the advantage of placing the full responsibility for the feasibility of the goals on DOE. At the same time, it should serve the purpose of stimulating a more disciplined planning and management approach than would be the case if DOE's schedule was not backed up by a clear Congressional intent that it be met if at all possible.

If Congress wishes to ensure that additional sites are identified and characterized in a timely manner, that a second candidate is submitted to NRC for licensing to provide a backup for the first, and ultimately that more than one repository is developed, a legislated requirement to that effect may be needed to make certain that the necessary funds are made available. Unless there is a clear expression of Congressional intent that backup sites be identified and submitted for licensing independently of the first candidate site, there may be a tendency in later budget cycles to defer or eliminate such backups, which could be seen by some as unnecessary duplication rather than as prudent redundancy.

Development and Approval of a Management Action Program

OTA's analysis suggests that, next to a congressional commitment to the goals outlined in Element I, the development of a sound, widely accepted and Congressionally approved management action program -- which shows precisely how the Federal Government plans to achieve the legislated goals — is the crucial next step in building public confidence that the job will get done safely and on time. This action program would lay out a schedule for all of the technical and institutional activities required to implement the commitment to a firm schedule for repositories, including the mandatory actions and decision points for DOE, NRC, and other involved agencies. It would also identify potential technical and institutional failures and would include contingency plans for dealing with any failures that do occur.

We have concluded that development of such a management action program is necessary if we wish to have high confidence that contractual commitments based on a firm mandatory schedule can be met. DOE waste management plans and programs to date have been based on internally generated reference schedules with no binding force and on the assumption that availability of appropriated funds from the Treasury would be significant constraint on programs that could be undertaken. The legislation under consideration would drastically change the situation by making a major Federal commitment to a specific target date, and by ensuring that the necessary resources are provided through a user fee on utilities. It would be a remarkable coincidence, to say the least, if the plans and programs that were appropriate under the old assumptions were also adequate to the new ones. An explicit requirement that such an action program be developed within a fixed time may be needed to ensure that adequate managerial and financial resources are devoted to the task.

We have also concluded that a mechanism for some form of official Congressional approval of the action program would be of great value for several reasons. In the first place, it would give DOE a very strong incentive to produce a good plan, and would put teeth into the schedules and milestones it contains. In addition, approval of the action program could provide a mechanism for revising the schedules that are contained in the original legislation, should more detailed analysis show that such revisions could be beneficial. In this way, any milestones enacted into law could serve as interim guides for DOE actions until an acceptable management action program was developed and approved, at which time the milestones in the action program would become the binding schedule. The action program submitted to Congress could even contain several alternative schedules, accompanied by an analysis of the risks, costs and benefits of each, so that Congress could make a choice based on much more comprehensive analysis than is available today.

Finally, Congressional approval of an action program containing a long-term budget of the expenditures required to implement the law could serve as a basis for multi-year appropriations from the waste management fund, which may be necessary to assure stability of funding over the long run. While one bill under consideration (H.R. 3809) takes an extremely important step by providing for triennial budgets and authorizations, it leaves open the possibility that the annual appropriations process might defer major capital expenditures, or reduce or eliminate the redundancy in site investigations needed to give high confidence that a mandatory schedule can be met. Congressional approval of an action program could provide a basis for allowing the implementing agency to make annual expenditures from the fund as provided for in the budget included in the program, while Congress could exercise annual oversight to ensure that the program is being carried out as planned and could approve any amendments to it. Until an acceptable action program had been developed and approved, however, the usual annual appropriations process would be used. The prospect of obtaining a greater degree of budgetary independence once an action program was approved could provide a strong incentive to DOE to develop an acceptable program quickly.

The Relationship of Defense and Commercial High-Level Waste

OTA's study focused on commercial high-level radioactive waste, and considered defense waste only to the extent that the decisions about how defense waste would be handled might have implications for the disposal of commercial waste. I would like to briefly summarize a few technical conclusions which might be relevant to decisions about the relationship between the two programs.

While the current inventory of commercial spent fuel represents a small percentage of the volume of high-level defense wastes, the roughly 8,000 metric tons of spent fuel already in existence contains more long-lived fission products and transuranics than the defense waste, and every three years the currently operating reactors will produce an amount of these isotopes equal to the total defense waste inventory. It is the content of these particular radioisotopes that determines the long-term potential hazard of the waste and its heat output, which is a more important factor in determining the amount of repository space needed for disposal than is the physical volume of the waste. As a result, the commercial high-level waste will require a much larger disposal system than will the defense waste. For example, the Department of Energy estimates that up to three or four 2000-acre repositories would be needed to accommodate all of the high-level radioactive waste generated over the 40-year operating lifetime of the nuclear power plants now in existence or under construction. In contrast, the Interagency Review Group estimated that at most only about one-fourth of the space in one such repository would be needed to dispose of all of the defense high-level waste expected to be generated by the year 2000.

Because there are clear economies of scale in constructing geologic repositories, and because the amount of repository space required for defense high level waste would be small compared to that needed for commercial waste, the cost of geologic disposal of the defense waste could be considerably lower if it were done in part of one of the commercial repositories, rather than in a smaller separate repository for defense waste only. For this reason, even if Congress decides to make separate provisions for siting repositories for defense waste only, or simply to leave the issue unresolved at this time, it may be advantageous to keep open the option for the defense waste program to contract for space in commercial repositories on the same basis as the utilities, just as the military can now purchase services such as use of the space shuttle from NASA, the civilian space agency. The option of purchasing space in a commercial repository could provide an additional financial advantage from the point of view of the defense waste program by allowing repository costs to be paid in relatively small annual payments (similar to those made by utilities under a mandatory fee approach), instead of being concentrated in a few large capital expenditures over a relatively short period of time. If Congress decides to deal only with commercial radioactive waste at this time, but still wishes to preserve the option of use of space in a commercial repository for defense wastes, then specific provisions to that effect may be required in commercial waste legislation.

Mr. OTTINGER. Are you suggesting that if we drop out one site, we require they replace it with another qualified site?

Mr. COTTON. It is more than that: that there actually be a requirement for another set of sites to be brought along in parallel—that you proceed with investigating sites not now the focus of detailed investigation so that backups will be available in case you have problems with the sites now being studied.

Mr. OTTINGER. Do you think that we ought to require that granite be brought along as one of the options?

Mr. COTTON. Well, if one wanted to provide substantial redundancy in the program, the inclusion of granite would bring in another medium in addition to more now under consideration. That could give you greater confidence that at least one site would be available on the date to which a commitment has been made.

Mr. OTTINGER. Do you think it is a serious failing not to require that granite be considered as one of the initial sites?

Mr. COTTON. With regard to the initial sites, I think that is simply a question of how much risk one wants to take that you will not have a licensed site at the end of this first licensing process. The longer one defers making the choice of a site and submitting it to NRC, and the more options you have in terms of sites, the greater the chances that at least one will come through at the other end. It is primarily a judgment of how important it is to get moving on sites now and take the chance that maybe the first one selected will not make it through the process.

Mr. OTTINGER. Do you find major problems with the geological formations presently being considered, salt, basalt, and tuff?

Mr. COTTON. We have not seen any analysis so far that indicates that the formations themselves are inherently flawed. In fact, the most recent analysis I have seen suggests there is no preferred medium at this time.

Mr. OTTINGER. Are any of them likely to stand up 100,000 years?

Mr. COTTON. I would be glad to guarantee anything, for 100,000 years, since I will not have to be around to deliver on the guarantee.

Mr. OTTINGER. It did not take that long for Lyons, Kansas, or the WIPP site in New Mexico, to reveal their flaws.

Mr. COTTON. I think those are good examples of the risks inherent in forcing the early decisions before you have time to find out if there are surprises that may pop up in the site evaluation process.

Mr. FREEMAN. Mr. Chairman, if I might say a word on this subject. It is a purely personal matter, as someone who has spent most of his adult life worrying about these problems. I agree very much with the testimony of the people from the Sierra Club and the Friends of the Earth that the nuclear option is not complete without the institutional arrangements and the culmination of a process to find an ultimate repository.

But I think this is one of the fundamental decisions that this generation is going to make. And it seems to me that in the last decade we have spent moving sideways trying to find some institutional arrangements capable of making this decision and carrying it out.

In many ways, personally it seems to me that the bill is still very weak in terms of the institutional arrangements. I am a person who had something to do with the founding of the Department of Energy, but I do not know that its half-life is anywhere near as long as radioactive materials.

And speaking personally, I believe that more attention needs to be given to the development of either a government corporation or a single-purpose entity in the executive branch that will devote itself exclusively and full time and perhaps for a longer time than a particular version of our energy establishment to the problem.

So that I would hope the committee would direct more attention to the half-life of the institutional arrangements and also provide the people with the responsibility, at least the option, of taking enough time to do it right in this particular subject.

We should not delay another second just for the sake of delay. We have got to go full speed ahead. But full speed ahead on this particular matter is very cautious and very careful, and we should not, in my view, impose statutory deadlines without at least having an escape clause in there so that if the responsible people feel they need more time for the health and safety of future generations, that they take it.

Mr. OTTINGER. Nothing is sure but death and taxes. Do you recommend the IRS?

Mr. FREEMAN. I do not recommend the Tennessee Valley Authority either. But we are a Government corporation that will celebrate our 50th birthday, and I do think a single-purpose Federal corporation devoted to a job which is supported by the Congress and the people have a good chance of surviving. And, of course, this is one of the serious problems with the whole nuclear option; that is, the survivability of the institutional arrangements that protect us.

Mr. OTTINGER. Tell me, David, do you think there is any need for us to provide for an AFR at all?

Mr. FREEMAN. I am not here to speak for the needs of the rest of the utility industry. There is no need for you to provide it for the TVA, and we are one of the largest producers of nuclear.

Mr. OTTINGER. Are you going to cop out on me?

Mr. FREEMAN. I do not know their situation well enough. But we are doing everything we can with the cooperation of the Government so that there will be technologies available. And I checked with our people as late as this morning, and they feel that the cask storage option should be demonstrated in 1983 and available for commercial use in this country and licensable in 1984. And nothing is sure, but that is the timetable our technical people are on. And it sounded to me this morning as if the NRC would cooperate in that.

Mr. OTTINGER. And if that is so, there would not be any need for the AFR?

Mr. FREEMAN. I do not know the individual situations of the individual utilities.

Mr. OTTINGER. If casks were licensed by 1984 and assuming there is no critical problem with the utilities until 1986, then there should not be any need.

Mr. FREEMAN. The casks have the advantage of having an economy of small scale in the sense that you can buy them and use them as you need them. The large away-from-reactor storage facilities are perhaps somewhat lower in cost if you fill them up.

We are glad we decided against them because what has happened since then is we are not building as many nuclear plants as we thought and we wouldn't have filled them up.

Mr. **Ottinger**. I am leading you to the edge of the cliff, but I cannot quite push you off.

Mr. **Cotton**. May I make one observation about the casks? If the estimate is that they would be available for licensed use in 1984, then I believe the DOE study indicated a 4-year cycle for a utility to order cash and get a license for use at their site. That would get you to about 1988 unless utilities were willing to gamble now that casks would be the solution and would, in fact, be licensed and available. Thus there may be some utilities in the 1986 to 1988 or 1989 time period who would be operating without full core reserve if they waited until they are sure these casks are licensable before they ordered any.

One value of having some minimal guaranteed Federal storage is that it could provide utilities an assurance that if they decide to go ahead with cask storage or drywell storage—another dry at-reactor option—they would be held harmless against delays that might result if problems develop with that technology or the licensing process the first time drags out longer than thought.

Mr. **Ottinger**. Did you look into MRS's at all?

Mr. **Cotton**. No more than examining the study that the Department of Energy did. We knew that was going on, and so we waited until it was finished.

Mr. **Ottinger**. Did you come to any conclusions?

Mr. **Cotton**. I think the decision about MRS depends very much on what kind of policy you have about final disposal.

If you decide to take the kind of approach that Britain and France have adopted, which is to plan to store waste for an extended period before you even select a disposal technology and defer all of the decisions about siting and technology, then it is hard to see how you can avoid the need for some sort of long-term centralized storage facility.

If your policy is to proceed in a very deliberate manner to go ahead and develop a particular disposal technology, then the role of an MRS is not nearly so clear. I believe the Department of Energy concluded in its study that there were enough uncertainties about such storage at this point that it was not clear what function it could perform in the program they have laid out for geologic disposal.

Mr. **Ottinger**. I was asked by one of my colleagues on the Public Works Committee to ask one question of you, David. They are concerned about possible plans for you to expand your jurisdiction beyond the current area of TVA.

Mr. **Freeman**. I am glad to respond to that question. The TVA board is committed to the existing law, which places a boundary around us. We reaffirmed our commitment to our existing service area at the time the authority for us to issue bonds was enlarged a couple of years ago.

And we as recently as yesterday wrote a letter to both the public power people and the private power people telling them that we stand by that position. We are not seeking to expand our territory, and we have not done so and have no intention of doing so.

Mr. **Ottinger**. Mention was made of the possible use of PURPA as a vehicle for expanding that.

Mr. **Freeman**. No. That issue was settled during the course of the congressional hearings on enlarging our bonding priority and settled to the satisfaction of the private companies and TVA.

This recent flurry is occasioned by the fact that some municipal public power people have introduced legislation seeking to amend the law to enable us to sell outside our service area. But we do not support that legislation.

Mr. **Ottinger**. All right. Thank you both very much.

The hearing at long last is adjourned.

[Whereupon, at 3:15 p.m., the subcommittee was adjourned.]

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